

Report on an investigation of the present status of birds
that migrate from the United States and Canada to
Argentina, Uruguay, Paraguay, and Chile.

By

Alexander Wetmore

IMPORTANT

(This report is a statement for Bureau use only.

No copy should be shown or furnished

where it may be made public.)

	Page.
Introduction	1.
Itinerary	1.
Game laws and the protection of game and nongame birds	6.
Argentina	7.
Argentine game laws	9.
Operation of Argentine game laws	21.
Sale of game in Argentina	24.
Hunting of game birds in Argentina	27.
Uruguay	
Game laws and protection of birds	29.
Paraguay	
Game laws and protection of birds	32.
Chile	
Game laws and protection of birds	35.
Decrease of game and changes incident on settlement	36.
Capture and sale of cage birds	42.
Popular ignorance with regard to bird migration	44.
Present status of North American migrant birds	48.
Future of North American migrants	63.
Treaties for the protection of migrant birds	65.

Introduction.

The operation of the treaty protecting migratory birds that pass between the United States and Canada has been attended with such gratifying increase among migratory game and insectivorous birds that it has been proposed to negotiate similar treaties with the countries of Latin America. Before such action was undertaken it was necessary to examine present day conditions in those countries with regard to our migratory birds. Such studies were necessary primarily in the areas where the bulk of our shorebirds pass the northern winter. The present report embodies the results of investigations on the species of migratory birds that pass from the United States to Argentina, Uruguay, Paraguay, and Chile. It covers an account of laws for the protection of birds in those countries, the general attitude there toward bird protection, the conditions under which our migrants are found, and a brief resume of the principal species of our birds that annually perform the long journey to southern South America. Field work on which this account is based occupied the period from May 29, 1920 to May 19, 1921.

Itinerary.

On May 28, 1920 I left Washington, D. C., and on the following day sailed from New York for Buenos Aires, Argentina, where I arrived on June 21. There I was occupied until July 3 in securing needed information from government officials, and men in scientific work, and in arranging for field work. Observations in the field were begun on July 4 in the Chaco, a region where marshy savannas alternate with tracts of forest, that extends west of the Paraguay River from Santa

to in northern Argentina to Bolivia. Observations were made in the territory of Chaco in July, in Formosa in August, and in the Paraguayan Chaco as far as latitude 28° south in September. Southward migration of shorebirds began July 31 at Las Palmas Chaco, and was at its height during the month of September when I was in Paraguay.

On October 1, I returned south to the open pampas of central Argentina. Wintering grounds of shorebirds in the Province of Buenos Aires were covered in October, early November, the middle of December, and the first week in March. Similar country was visited in January and February in Uruguay where I worked eastward in a marshy region toward the Brazilian frontier, and later in a higher area in western Uruguay. During the latter part of November and the first half of December I covered northern Patagonia in the territories of Rio Negro, and Neuquen, proceeding westward to the base of the Andes. After the middle of March I visited the eastern foothills of the Andean range in the Province of Mendoza, and the level region at the eastern base of the mountains in that area. This work was continued during the first part of April farther north in the Province of Tucuman. Northward movement among waders began at the end of January and gained in volume through March and April. On April 22, I crossed to Valparaiso, Chile, and after a week spent on the coast at Concepcion north of Valparaiso I sailed for New York via the Panama Canal.

The original plans for this trip called for travel in southern Brazil, but this I was forced to omit through lack of sufficient time during the period when our migratory birds were present. Similar^{ly} work in Chile was curtailed owing to the need for observation of an extensive

shorebird flight encountered in the interior of Argentina during April. By the end of April the northward flight along the coast of Chile was almost at an end.

Following is a detailed itinerary for the entire period of this work:

May 28, 1920	Left Washington, D. C.
May 29-June 21	New York to Buenos Aires, Argentina.
June 22-July 3	Buenos Aires.
July 4-July 5	Buenos Aires to Resistencia, Chaco (via railroad).
July 6-July 11	Resistencia, Chaco.
July 12-August 2	Las Palmas, Chaco.
August 3-August 5	Formosa, Formosa.
August 6-August 21	Riocho Pilaga (Kilometre 182), Formosa.
August 22-August 25	Formosa, Formosa.
August 26	Alberdi, Paraguay.
August 27-August 28	Asunción, Paraguay.
August 29-August 30	Asunción to Puerto Pinasco, Paraguay.
August 31-September 3	Puerto Pinasco, Paraguay.
September 4-September 26	Kilometre 80, Puerto Pinasco, Paraguay.
(Work here was carried to a point 200 Kilometres west of the Paraguay River).	
September 29-October 1	Puerto Pinasco, Paraguay.
October 2-October 3	Puerto Pinasco to Asunción, Paraguay.
October 4-October 6	Asunción, Paraguay.
October 7-October 9	Asunción to Buenos Aires (via railroad).
October 10-October 18	Buenos Aires, Argentina.
October 19-October 21	Dolores, Buenos Aires Province.

October 22-November 16	Lavalle, Buenos Aires, Province.
November 17	Santo Domingo, Buenos Aires, Province.
November 18-20	Buenos Aires.
November 21	Buenos Aires to General Roca, Rio Negro, Territory.
November 22-December 5	General Roca, Rio Negro.
December 6-December 11	Zapala, Neuquen.
December 12	Bahia Blanca, Buenos Aires.
December 13	Ingeniero White, Buenos Aires.
December 14	Bahia Blanca, Buenos Aires.
December 15-December 21	Carhué, Buenos Aires.
December 22-December 31	Victorica, Pampa.
January 1-January 7, 1921	Buenos Aires, Argentina.
January 8-January 21	Montevideo, Uruguay.
January 22	Montevideo to Rocha, Uruguay.
January 23	La Paloma, Dept. Rocha.
January 24-February 1	San Vicente, Rocha.
February 2-3	San Vicente to Lascano, Rocha.
February 4-February 9	Lascano, Rocha.
February 10	Corrales, Treinta y Tres.
February 11-12	Montevideo.
February 13-21	Rio Negro, Dept. Rio Negro, Uruguay.
February 22	Rio Negro via Salto to Concordia, Argentina.
February 23	Concordia, Entre Rios.
February 24-March 1	Buenos Aires.
March 2-March 8	Guaminí, Buenos Aires.
March 9-March 10	Buenos Aires.
March 11-March 12	Buenos Aires to Mendoza, Mendoza.

March 13-March 14	Mendoza, Mendoza.
March 15-March 21	Potrerrillos, Mendoza.
March 22-March 29	Tinuyán, Mendoza.
March 30-April 1	Mendoza, Mendoza to Tucumán, Tucumán via Villa Mercedes and Córdoba.
April 2-April 5	Tucumán, Tucumán.
April 6-April 14	Tapia, Tucumán.
April 15-April 18	Tafí Viejo, Tucumán.
April 19-April 20	Tucumán, to Mendoza.
April 21	Mendoza, Argentina to Valparaíso, Chile via railroad.
April 22-April 23	Valparaíso, Chile
April 24-April 29	Concepción, Valparaíso.
April 30	Valparaíso, Chile.
April 30-May 18	Valparaíso, Chile to New York.

Game Laws and the Protection of Game and Nongame Birds.

In each of the countries visited all information available regarding game laws and protection of birds in general was secured and wherever possible copies of existing laws were obtained. The information gathered is summarized in the sections following, under the four countries covered. The treatment accorded Argentina is fuller than in the case of Uruguay, Paraguay and Chile, as Argentina has a great extent of territory where our migratory birds are found. Legislation there has also been more extensive than in the neighboring countries.

In general it may be said that the protection of birds in these countries is about at the same stage as in the United States thirty years ago. The countries concerned, Argentina in particular, have seen the necessity for restrictive game legislation, and have in force a number of laws covering such matters, but the public in general has not been educated to their observance. This is due in part to the fact that extensive settlement and development of these countries has been comparatively recent so that game and other animals in many regions have been accessible to a large number of people only for a comparatively short time, and in part ^{to} the large proportion of the colonists that have come from the south of Europe, where sentiment for the protection of birds, particularly of the smaller species, is notably wanting.

17

Argentina.

The Argentine Republic is divided into ten provinces and 14 territories, governed much as are our states and territories, save that the territories are under military rule. In considering the laws for game protection it must be borne in mind that land in Argentina is held mainly in large estates, frequently many square leagues in extent. Division into smaller holdings has taken place locally, but legislation on the whole has been directed by and in the interest of large land owners. Only in the scattered towns is there any extensive rural settlement. Cattle, horse, and sheep raising, and wheat farming are the main industries of the pampas, while in the north forests producing lumber and tannin are being exploited. There are large areas remote from business centers where communication is slow and difficult, and human affairs are administered under what may be termed frontier conditions.

The question of bird protection in Argentina has received some attention within the past five years. The matter has been given prominence by the organization of the Ornithological Society of La Plata (Sociedad Ornithológica del Plata) and has received attention in the Journal of this Society entitled El Hornero. In practically every number of this periodical attention is called to the value of birds to mankind and suggestions have been made for education of the public along these lines. Some of these have been copied in the daily press.

Within the past five years a society known generally as the "Barmiento" (called in full the Sociedad Protectora de niños, ^{plantas} y animales, society for the protection of children ^{plants} and animals) has grown greatly and

has accomplished much good in educational lines. Thus far its efforts have been directed mainly toward the betterment of conditions among children of the poorer class and in channels similar to those followed by our societies for the prevention of cruelty to animals. This organization has been interested also in matters of bird protection.

The National Board of Education has introduced certain elements of nature study in the schools with the idea of preservation of the native fauna through a better idea of the value to man of useful birds and animals. The extensive Zoological Gardens in Buenos Aires under Dr. Clementino Onelli through the exhibition of living animals has fostered the same idea. A booklet entitled *La Fauna Argentina* by Sr. Juan Brothes, illustrating in colors prominent animals found in Argentina has also had a definite educational value though it has been limited in its distribution. It may be said that popular education along lines leading to protection of birds and other animals is in its beginnings in Argentina and Uruguay, and is much farther behind in Paraguay and Chile.

Argentine Game Laws.

Game laws in the Argentine Republic are based on what is known as the *Código Rural*, a series of laws referring to agriculture and other rural matters.

There is however in the Civil Code (*Código Civil*, Art. 2574 to 2577) a provision to the effect that hunting of game is a method of acquiring an article by appropriation, to be pursued only in lands belonging to the individual, or in open lands that are not fenced, planted or cultivated, governed furthermore by police regulations; with the additional stipulation that animals killed on property other than that of the hunter, without permission of the owner of the land belong to the owner of the land, while the hunter must pay for any damage that he may have caused.

Definite game laws however are provided in the rural codes, among which may be considered first the National Rural Code (*Código Rural Nacional*) that governs the territories (10 in number), thinly settled areas, in part undeveloped, that have not yet attained the rank of provinces. Regulations for hunting and fishing are given in the second section of the first book of this Code (art. 7 to 21 inclusive). Freely translated the provisions of these regulations are as follows:

7. Appropriation by hunting as established in the Civil Code shall be subject to the prescriptions of the present section.

8. Hunting will not be allowed save in the periods that shall be fixed by the administrative authorities of each section.

Injurious animals may be destroyed at any time by proprietors of lands or those in charge of lands where they may be found.

The hunting of insectivorous animals shall be prohibited at all times.

9. At no season may there be hunting among the edifices of a town or city. Should the authorities consent or give permission for such hunting they shall be subject to the same penalty as the hunter.

10. Hunting with the bolas ¹ is prohibited save in the chase of

¹ [Bolas consist of three rounded stones from one to two inches in diameter sewn in leather and attached to the ends of thongs two or three feet long, the thongs being tied together at a common center. This sling is swung about the head and then cast at a running animal when it winds about the legs and brings it helpless to the ground.] a.w.

dangerous animals.

11. It is a violation of property rights to hunt or arrange battues on private property without previous permission from the owner or his representative.

12. Even in public lands hunting of guanacos or rheas with bolas is prohibited or their destruction by other means. ²

² We propose to do away with the barbarous custom, usual in the southern territories, of making great battues of guanacos and rheas, which are destroyed without attempt to save respectively either skins or feathers. Both animals in the future may constitute bases of important industries, while their present exploitation fosters vagrant [or destructive] habits among men of rural habitation.

13. Every owner, renter or possessor of land may hunt freely in his holdings; but with complete subjection to the regulations of article 8.

14. Infractions of the regulations of the present section shall be punished by a fine of from 20 to 50 pesos, to be given to the appropriation for bridges and roads.

15. Every hunter shall be held responsible for transgression or imprudence, in the manner established by common law, and is obligated to make reparation for any damage that he may cause.

16. Animals killed on private ground, without permission of the hunter, belong to the owner of the land.

17. Any wounded game that takes refuge on other land or falls from the air on other land belongs to the owner of the land and not to the hunter. (Articles 18, 19 and 20 apply to regulations governing fishing and have no bearing in the present connection.)

21. No action or accusation of violation of the preceding articles shall be admitted unless it is presented within 48 hours following the deed, except usual action for damage or loss.

(The translation above has been rendered to give the meaning of the clauses, and should not be understood as an attempt to transcribe word for word from Spanish into English.)

These are the basic regulations governing hunting in the ten territories, viz., Tierra del Fuego, Santa Cruz, Chubut, Rio Negro, Neuquen, Pampa, Misiones, Los Andes, Chaco and Formosa. It will be observed that these cover the entire region known as Patagonia, the western, more arid section of the pampas (territory of Pampa), the

Chaco (Chaco and Formosa), the north Argentine section of the Cordillera (Los Andes), and the wooded tract of Misiones lying on the Brazilian frontier. The territories are under military rule and, as in most newly developing or unexploited frontier regions where game is plentiful, little attention is paid to the restrictions of game laws save that permission for hunting, usually easily secured, is required on large estates. Everyone hunts on government owned land without restrictions. The killing of small birds is viewed with apathy, and few regulations additional to those in the rural code have been promulgated for the protection of game. In Formosa I was informed by the governor of the territory that only one law governing the killing of birds was in effect, an edict that prohibited the killing of the *garza* and *mirá al sol* (names applied rather indiscriminately to the herons producing plumes, usually signifying the Snowy Heron; the true *mirá al sol* is the bittern a rare bird in that region) in order to secure their plumes. Other game laws were abrogated as it was necessary to allow Indians, who lived largely by the chase, to hunt game as food at all times.

Other decrees have without doubt been issued in the territories from time to time, but though careful inquiry was made in the territories visited I was unable to obtain knowledge of them. In general no attention is paid to such matters and though such decrees may be still operative they have been forgotten. There is nothing to correspond to our State, Fish and Game departments, and enforcement of laws is in the hands of military police.

The provinces of the Argentine Republic - 14 in number - occupy the older better settled central portion of the country: they are as follows: Buenos Aires, Mendoza, San Luis, Córdoba, Santa Fe, Entre Ríos,

Corrientes, San Juan, La Rioja, Catamarca, Tucuman, Santiago del Estero, Salta and Jujuy. The provinces are organized in a manner similar to that of our states so that each has its own system of law codes, modeled on the national codes, but modified in most cases to make the provisions more explicit.

On examining the Rural Code of the Province of Buenos Aires there is found in the first book, first part, third chapter, section VI, a series of laws (Nos. 259 to 262) relating to hunting.

A free translation of these follows:

Section VI.

Hunting.

259. The pheas, tinamou, pigeon and in general all birds large or small, as also the deer, coypu, armadillo and in general all small, wild quadrupeds, while they are found in or inhabit private lands, form an accessory of the land, and are the property of the owner, renter, or possessor of it.

260. Battues with dogs, being prohibited, it is permitted to employ poisoned meat in order to exterminate these animals in the country.

261. He who hunts or pursues in private lands, the birds or quadrupeds designated, without previous permission of the owner or possessor, or of the one in charge, violates personal rights.

262. Any person or persons doing this, shall be fined by the Justice of the Peace to the amount of five hundred pesos each, for the benefit of the municipality; and should the violator or violators be unable to pay the fine, they shall be consigned to public work of the

county until the wages earned shall correspond to the amount of the fine.

263. Should the hunter, even though hunting with permission of the owner, or possessor, destroy fencing or cause other damage, he shall cover the amount by indemnity for what he may have done; and if the hunter is not satisfied [with the amount] valuation shall be made by judges who shall be named in accordance with what has been established in article 154.¹

¹ Article 154 (Codigo Rural). The amount of indemnities failing free arrangement by those interested, shall be fixed by the Justice of Peace, following estimates by assessors who shall be named by the parties interested, or in case of disagreement by the Justice of Peace, who in case of discord shall decide, without appeal, the amount in question.

264. The hunter shall be liable for similar indemnity, if in hunting with firearms, his shots shall damage fruits, trees, crops, domestic or work animals, on other neighboring property. Further should his shots kill or wound any person, he shall be summoned and held by the proper judge of the first rank.

265. He violates public rights, who hunts or pursues game in public lands without written license from the municipality or Justice of the Peace if there is no governing municipality; such licenses, which shall be valid for hunting only in the county in which they are issued, shall be given for a limited section, and shall be issued on official tax paper, or on ordinary paper provided there is attached the amount in stamps designated by the tax laws.

266. In order to ensure conservation of species [of game] each municipality, or failing this, each Justice of the Peace, shall determine, and shall publish in advance in his district, the periods or months of the year, in which alone shall be permitted the hunting of each species. He, or it, shall fix and shall publish the fines and penalties incurred by those who violate the present article or the preceding ones.

267. Any owner, renter or possessor of land may hunt freely in his property all species [of game], but shall be governed in this by the ordinances of sections 264 and 266.

268. Any wounded game which takes refuge on other property or falls from the air on other property, does not belong to the hunter who wounded it but to the owner or possessor of such land.

(The above translation has been rendered freely and should not be accepted as a literal transcription.)

As the Federal district containing the capital city Buenos Aires is located in the northern part of the Province of the same name there is more hunting in that region both for sport and the market than elsewhere in the republic. Game and matters concerning it have thus attracted much attention in the Province of Buenos Aires, and a number of decrees governing hunting have been issued. In 1916 these were published in a small pamphlet by the Department of Public Works of the Province. Following are three translations of pertinent sections given therein.

The following are extracted from a decree of September 14, 1910:

Art. 1. Any person 16 years of age has the right to hunt with fire arms, subject to governing regulations and the content of the present decree.

Art. 2. In no case is it permitted to hunt with ball [rifle] at a less distance than 1500 meters from a habitation without permission from the owner; nor with shot [shotgun] at a less distance than 300 meters without the same permission.

Art. 3. From the first of September until the thirty-first of March the hunting in any form of the following species is prohibited: guanacos, ciervos (deer), gamas (deer of another kind), carpinchos (capybaras), nutrias (coypus), lobos marinos (seals), lobos de los ríos (otters), militas (armadillos), avestruces (rheas), perdices (tinamous), gansos (coscorobas), cisnes (black-necked swans), and patos (ducks).

The hunting of tinamous is absolutely prohibited throughout the year in the first and sixth electoral sections during 1911, in the second and fifth sections during 1912 and during 1913 in the third and fourth sections.

[For modification of this section see below].

Art. 4. For the period of three years it is absolutely prohibited to hunt or sell such birds useful to agriculture as those known by the names of horneros (evenbirds), tordos (cowbirds and related blackbirds), pechos amarillos (*Pseudoleistes virescens*, a member of the Icteridae), pechos colorados (*Turdus militaris*, the military blackbird), lechusas (burrowing owls), urracas (*Guiraca guiraca*, a cuckoo), golondrinas (swallows), gaviotas (gulls and terns), teros (*Platanopterus* *gavannensis*, the spur-winged plover), flamencos (flamingos), garzas blancas and negras (snowy and cocoi herons), ciguénas (maguari storks), oservos (turkey vultures), calandrias (mockingbirds), chorlos (sandpipers

and plovers), bocasinas (snipe of the genus Gallinago), and other small birds of mere adornment, except the large doves, parrots and English sparrows (Passer domesticus).

[In the paragraph above I have interpolated in parentheses, an indication of the birds signified by the Spanish names that are given alone in the original.]

Art. 5. It is also prohibited at any time to destroy the nests, take the eggs or capture or destroy the young of the birds embraced in the preceding article, as also to buy and sell such nests, eggs, and young.

This prohibition shall not extend to the destruction by proprietors or residents, of the nests of birds that may be constructed within or on houses or edifices in general or in the interior of court yards.

Art. 6. In the fourth article the prohibition does not include the sale of living insectivorous birds, that are sought for their songs or for adornment of aviaries.

Art. 7. Should an owner consider injurious to his crops any of the species indicated in the third article, he may solicit from the local prefect or police permission to destroy them during the closed season, but may not carry out from his land the animals killed.

Art. 8. The sale of game during the closed season is permitted in the following cases:

1. Within 48 hours following the closing of the hunting season.
2. Until 15 days after the close [of the season] in the case of products preserved by refrigeration in accordance with the dispositions of this act.

Art. 9. Three days after the close of the hunting season, refrigerating companies for the sale of such products [game], shall report to the municipal authorities of their respective jurisdictions, the quantity and kind of game deposited, indicating its source, information that shall be preserved in the books of the establishment, together with all removals that are made during the closed season.

Art. 10. The sale of game may not take place from September 15 to March 31, unless it has been marked by the proper municipal authority.

a. Birds, with a seal passed through the bill, although several birds may be united by a single seal.

[Two other sections refer to the marking of game other than birds.]

Art. 11. Municipal employees of the cities when there are refrigerating plants are authorized to control the exit of game in accordance with regulation, and shall be charged to mark or to oversee the marking of the game it is desired to preserve.

Art. 12. The seal used shall bear on one side the seal of the Province of Buenos Aires, and on the other the name of the city or town in which the game is marked.

Art. 13. Violators shall pay a fine of 50 pesos in national money, or in default of this shall suffer arrest, one day in custody being equal to 4 pesos of the fine. The police shall levy the fines and shall transmit the amounts to the proper municipalities.

Art. 14. Merchants who buy skins, plumes, eggs or dead birds during the closed season shall incur the fine allotted in article 13 for the first offence, and double the amount in case of a second offence.

Art. 15. The authorities of the Zoological Garden are charged to make a thorough study of useful and injurious birds that may serve as basis for further modifications of this decree, and also to advise what may be done with respect to the introduction of useful birds that we lack and that may easily be acclimated in our country. (16 is of no importance in the present connection).

Art. 17. The general school board is requested to cooperate through meetings and lectures showing the utility and necessity for the protection of birds useful to agriculture.

On June 3, 1913 these provisions were amended to prescribe further local closed seasons for tinamou and to extend the provisions of article 4 for a further period of three years.

On June 15, 1914, the following amendment was adopted: Article 3 of the regulatory decree regarding hunting of birds useful to agriculture and animal industry is amended as follows:

From October 1 to April 30 it is prohibited to hunt in any form the following species, guanacos, deer, cavybaras, coypus, seals, otters, armadillos, rheas, tinamous, coscorobas, swans and ducks.

On February 11, 1916 the section regarding shooting seasons was further amended to allow an open season for hunting from May 1 to August 31 inclusive.

Perusal of the paragraphs preceding will indicate a growing interest in the protection of game in the settled sections surrounding the city of Buenos Aires. The other provinces have sections in their rural codes similar to that cited from that of Buenos Aires, and have issued certain decrees. As such decrees or parts of the rural code are not published for general distribution it was found impracticable to

make even a partial collection of them, while in most instances they were unknown even among lawyers and officials. It was not possible to purchase them in the large stores handling law books and similar publications in Buenos Aires. However a few were secured that are of interest and serve to illustrate the trend of local legislation.

In the Province of Entre Rios (Rural Code, art. 161) it is prohibited to hunt insectivorous birds, but municipal and district authorities may authorize this when such, coming in large flocks, seem of damage to seeded crops; in each case the permits shall indicate the species of birds that it is permitted to kill.

The Rural Code in Santa Fe is similar to that of Buenos Aires.

In Mendoza and Tucuman the closed season for hunting was the same as that in Buenos Aires, and, in general, these closed seasons were set uniformly throughout the republic.

Operation of Argentine Game Laws.

The abstracts that have been given from the laws of Argentina show that the need of game protective legislation has been recognized in certain quarters, and that game laws have been recorded on the statute books. Although these laws have been promulgated their operation is another thing, as in most quarters there is a general apathy in regard to protection of game, and more or less complete indifference where small birds are concerned.

It has been noted that it was considered necessary to suspend the operation of game laws in the Territory of Formosa in order to permit Indians living in the Territory to secure meat for food, but that a special provision had been made to protect plume-bearing herons. On actual operation even the last measure was disregarded. Indians made special trips to heron rookeries to secure heron plumes and killed the birds in large numbers. Indians and traders in the Formosan Chaco informed me that in 1919 Cacique Mayordomo, head of the Tobas of that section, had arranged organized hunting of plume birds and that in behalf of his people he had sold 75 Kilograms (one Kilogram equals approximately 2.2 pounds) of plumes for a sum of between 8,000 and 9,000 pesos (at normal exchange 8,000 Argentine pesos equals about \$3,525 U.S.). In August, 1920 at the Rincho Pilaga the Tobas were preparing for a two weeks trip after herons at a rookery on the Pilcomayo River, and invited me to accompany them. In conversation I found them well informed regarding plume seasons as they told me that herons eggs were just hatching so that the plumes were "ripe." I learned later that they secured a fair lot of plumes. Heron plumes are regarded more or less as contraband

but are taken in trade by traders, and shipped to Buenos Aires for sale, in spite of the regulation in the local laws against handling them.

The closed season against general hunting of game birds, ducks, geese, tinamou, etc., in the provinces is somewhat better observed though hunting continues throughout the year, especially by market hunters. General hunting near the settled centers is discouraged, so that numbers of hunters are not seen afield as in the open season. On distant estancias however sportsmen do as they please, protected by broad expanses of privately owned land where trespass is forbidden, while market hunters shoot sufficiently to supply the needs of an "underground" market system. Those who shoot small birds do so with more or less impunity, as small bore shotguns of 9 or 12 millimeter gauge that make little noise are used, and in most places no attention is paid to the practice.

Game was not exposed openly for sale in the markets during the closed season for hunting, as I ascertained during visits to the main markets at various periods between October and March. However, tinamou and ducks were offered regularly at the principal hotels and restaurants in the city during the entire period that I was in Argentina. Occasionally tinamou were served, without comment, in small town hotels, or supplanted the inevitable chicken in table d'hote meals on railroad dining cars. Apparently there was a strict supervision of the open markets, but the birds were handled under cover from market hunter to hotel direct, or through the medium of unscrupulous commission men. I was satisfied that most of the birds sold out of season were not from cold storage.

Away from Buenos Aires game laws received scant consideration by residents in the rural districts. In Mendoza in March shotgun cartridges

were advertised in large type in the newspapers though the hunting season was not open, and in Tucumán hunters went out openly to kill what game birds they could find. To the credit of most of the sportsmen however, it may be said that there was a sentiment among them against killing tinamou extensively during the breeding season.

In some sections small "finos" that amounted to a license to hunt were imposed upon hunters, who after payment were free to do as they pleased. In other sections residents had similar freedom though strangers even if making scientific collections of birds were subject to restraint.

The director of the National Museum in Buenos Aires had the power to issue letters allowing scientific collecting throughout the republic. Without this it is in some instances necessary to secure a hunting license from provincial or territorial authorities in order to make scientific collections.

Law enforcement is vested in the police in the provinces or in military police in the territories. There are no game wardens or departments of game.

Sale of Game in Argentina.

Game birds are handled in large quantities during the open season in the city of Buenos Aires and some, particularly tinamou, are brought from a considerable distance. Formerly great quantities of tinamou were exported from Uruguay to Buenos Aires, and though this traffic has been suppressed in part still there is no question but that Uruguayan birds are sold in Argentina in considerable numbers. There are several large retail markets in Buenos Aires where game is sold and in June 1920 (the season of midwinter) dead birds were offered in abundance. On June 24 at the Mercado de la Plata, in the business section of Buenos Aires, I found about a dozen stands that handled game birds. Tinamou were sold entire without being plucked. About 1,000 were exposed on the day in question divided among three species, Rufous-winged Tinamou (Rhyngotus rufescens), Crested Tinamou (Colaptes olivaceus), and Spotted Tinamou (Notturna maculosa and N. darwini). Five of the game stands handled ducks, about 500, all freshly killed, being displayed at this time. These included the following: many Rosy-billed Duck (Metopiasa rosea); many Southern pintails (Dafila aninicauda); many Tree Teal (Melitta flavirostra), a few Chiloe Widgeon (Mareca sibilatrix), one Fulvous Tree Duck (Amarecyon biglor). In addition quantities of Muscovy Ducks were offered but these all seemed of domestic origin. Most of the ducks were exposed with the body plucked and men were working steadily on the remainder. The feathers apparently were discarded.

Prices ranged as follows (in pesos and centavos 2.27 pesos at normal exchange being equivalent to one dollar).

Spotted Tinamou	.70 to .80
Rufous-winged Tinamou	.80 to 1.40
Crested Tinamou	1.20 to 1.50
Rosy-billed Duck	1.00
Southern Pintail	.80
Tree Teal	.50 to .70
Chiloe Widgeon	.60
Rufous Tree-duck	.80

Street vendors selling from baskets, retailed Spotted Tinamou at .80 to 1.00, and occasionally Rufous-winged or Crested Tinamou at from 1.40 to 1.50. The Spotted Tinamou is about as large as a Hungarian Partridge; the two other species are slightly smaller than a guinea fowl.

Conditions were similar in other markets.

Some birds were put in storage but the number handled thus was not great so far as I was able to learn. A small quantity of Tinamou were exported to London but this business was said to have decreased greatly in recent years. Others were taken out as ships' stores by some of the large passenger steamers running to New York or Europe. Thus one ship was supplied with 300 birds in this service.

Average prices of game served in the hotels were as follows:

Wild Duck	1.40
Spotted Tinamou	1.40
Crested or Rufous-winged Tinamou	1.40
Snipe (similar to Wilson's Snipe)	1.30
"Small birds" (Thrushes, other passerines, sometimes Shorebirds)	.90

The tinamou had firm meat, very white in color, and were excellent in flavor. All birds were served with the tarsus entire, with only the toes chopped off so that it was a simple matter to identify them.

After the close of the hunting season on August 31, game was not exposed for sale openly, and when I made inquiry of the market men I was told that it was illegal to sell it. However, it was still available in the restaurants. Thus on October 16 and November 19, 1920, I was offered snipe, tinamou, small birds and wild duck, and on February 25, 1921 tinamou, wild duck, Bartramian Sandpiper (Upland Plover) at 1.30, small birds at 1.00 and Snipe. This was the first appearance of Upland Plover, and hotel men told me that now this bird, known as halitu, was scarce and hard to secure. On February 25, and again on March 1, I ordered halitu and was served with a single bird as a portion. The bird was served with head and feet intact, so that there was no question that it was an Upland Plover as shown by parts of these two specimens that I preserved. On another evening my waiter brought in two freshly dressed Upland Plover on a plate to show me. The birds, as yet uncooked with head and feet intact, had not been dead more than a day and a half. I was informed that though formerly abundant they were available now only during part of February and March.

Curb on the open sale of game during the closed season has been recent, as within two years birds of all kinds were sold during the entire year without hindrance; a condition that had been usual in the past.

Attempts to learn to what extent game was held in cold storage were not successful. Apparently the quantity handled thus was not great as what birds were needed for illegal restaurant sales were killed as wanted by market hunters.

Hunting of Game Birds in Argentina.

During winter season hunting of birds was extensive in the settled regions. On a day afield on June 29, 1920 near Berazategui, not far from Buenos Aires, I found men and boys scattered everywhere through the country near the River Plate. Gulls were killed in considerable numbers, while ducks, snipe, thrushes in fact apparently anything that wore feathers was considered game. On other days men were observed hunting small birds with small bore shotguns. In fact hunting was noted more or less constantly when I was travelling or working in settled regions. Methods employed in duck or snipe shooting were cruder than those used in the United States. Natural blinds such as low banks, rushes or other vegetation were utilized as hiding places, and decoys to entice game within range were almost unknown save that dead gulls were waved or tossed in the air to call up unsuspecting companions. Wealthy men employed pointers or setters in hunting tinamou, but the use of these was unknown among the poorer class. Organized hunts for all kinds of small birds were usual. Shorebirds were especially sought in Northern Buenos Aires and Southern Santa Fe when the birds were passing in migration. It was a common custom to keep wounded birds of all kinds alive, perhaps that the meat might not spoil so quickly. It was common to see boys or men on hunting expeditions carrying a luckless ibis, gull or duck with a broken wing. On several occasions I noted that such birds were kept alive throughout the entire day.

Gun stores in the large cities ^{were} ~~are~~ well stocked with fire arms of American, English, French and Italian makes. The sixteen

gauge shotgun was the most common size offered for sale. Ammunition came mainly from England and the United States, and sold at prices only slightly higher than in this country. To avoid some extra tax levy smokeless powder shells were shipped in loaded with powder only, and were charged with shot as they were sold. Black powder was in almost universal use. Most hunters favored heavy sizes of shot so that ordinary loads were charged with shot ranging from No. 4 to B B. Countrymen not satisfied with these, frequently cut lead slugs from three sixteenths to a quarter of an inch in diameter and laboriously hammered them until they were round. The single barreled shotgun was the most common fire arm used. In the Chaco I saw old single shot .45-.90 rifles that may well have seen service in the old days of buffalo on our own western frontier. Occasionally a peon had made a "pistol" from one of these rifles by sawing off the barrel six inches from the breech and cutting off the stock behind the triggers. I was told that these weapons did not carry straight for any distance but that they made lots of noise!

Uruguay: Game Laws and Protection of Birds.

Regulations governing the protection and hunting of birds in Uruguay, formerly contained only in the *Codigo Rural* or code of laws pertaining to agriculture are now supplemented or in part replaced by regulations set forth by the *Defensa Agricola*. The law establishing this agricultural board prohibits the hunting or sale of small birds not injurious to agriculture, or the destruction of their nests and eggs, and provides further that the board may promulgate lists of species of injurious animals that are to be destroyed; or on the other hand may provide for the complete protection of those judged beneficial. Thus far the ~~Horizon~~ or House Sparrow (*Passer domesticus*) is the only bird that has been declared positively injurious. Absolute protection has been accorded gulls, and the commercial use of their eggs has been prohibited.

Tinamou, ducks and other waterfowl furnish the main species of birds hunted as game in Uruguay, with the medium sized spotted tinamou (*Notturna maculosa*) known as perdis or partridge leading all others. Formerly these birds were hunted systematically for the market, especially in the area tributary to the city of Montevideo. Men employed laborers who made the pursuit of these birds with dogs, nets and snares a business followed assiduously throughout the entire year. The birds were subject to constant persecution even during the breeding season. Tinamou sold in pairs bringing formerly six to ten centesimos a pair, a price that advanced later to sixteen to twenty centesimos. (The centesimo at normal exchange is equivalent to approximately one cent in U. S. currency). One of these professional hunters, with four men in his employ, in one of the later years when hunting was reported as "poor" shipped no less than

9,000 pairs of tinamou. It was estimated that 2,000 men then were engaged in market hunting, and the number of pieces of game of all kinds marketed was estimated at one and one half million in this so-called bad year. This enormous number included ducks, shorebirds, swans and a small number of hares but was made up largely of tinamou, all taken in a tract comprising only about one fourth the area of the Republic.

Quantities of tinamou were sold to factories where they were preserved for sale, canned or otherwise.

The birds taken in the western section were exported in large numbers from the ports of Colonia and Sauce to the markets of the great City of Buenos Aires a few hours away on the opposite shore of the Rio La Plata, where they found a ready sale. In Montevideo quantities of tinamou were placed in cold storage so that it was difficult to check those killed during breeding season. To regulate these abuses a decree issued in March 1917, forbade the use of snares or nets in hunting, and the exportation of game either fresh or refrigerated, while a closed season was declared in the departments of Soriano, San Jose and Colonia, that the birds might recuperate their numbers. Since that period temporary closed seasons have been declared in different sections as need arose.

In addition other regulations have established an open season for hunting extending from March 30 to August 30 each year, a period of five months during which hunting is permitted. The hunter must secure a license good in one or more departments according to the price that he pays, two pesos being sufficient for one department, four pesos for four and eight pesos for eight departments. It is forbidden to hunt at night, and it is obligatory to secure permission from the owner of land before entering on his premises.

Under these regulations traffic in game has been suppressed to large extent during the breeding season, while commercial hunting on an extended scale is no longer profitable since large numbers of birds may not be taken by means of snares. A more comprehensive game law based on those in force in the United States has been framed by the *Defensa Agricola* but has not as yet been made into law. Opposition against it has been directed mainly toward one of the first sections wherein it is expressly stated that wild game is considered as the property of the State. The commonly accepted belief is that the right to game is inherent in the owner of the land that supports it, and that though the hunting of game in general may be restricted still the land holder may kill for his own personal benefit at any season as he sees fit.

On the whole the attitude toward game and non-game birds during the summer season when I was in Uruguay seemed excellent. Near Montevideo as near many large cities in other parts of the world there was more or less shooting in January mainly by boys, a condition reflected in the wildness of such birds as gulls and ducks along the coast. Where colonies of immigrants have been located on small tracts of land there is more or less hunting of small birds especially by Italians, but in the broad *estancias* that cover most of Uruguay killing of small birds and general hunting out of season is reduced to a minimum. Hunting near Montevideo is fostered by the sale of arms and ammunition in the stores, and the same is true near the larger cities elsewhere.

As the law stands at present there is no definite provision for permission to kill birds for scientific study. In my own case I was treated courteously in this matter and was given a letter to the police, who are in control of rural affairs, explaining my mission, so that I had no difficulty in securing what specimens were needed.

Paraguay, Game Laws and Protection of Birds.

In 1920 I was informed in Asuncion, Paraguay that the only law in force at that time that could be construed as a game law was one requiring a police permit to bear arms in the country, a regulation that perhaps was more or less enforced in the settled districts of eastern Paraguay, but that was wholly ignored in the vast Chaco west of the Paraguay River where my investigations were made. A law for the protection of birds had been formulated through the agency of the well-informed naturalist A. W. de Bertoni, and it was proposed to introduce this before the Paraguayan Congress during the coming year.

Save for a narrow fringe of settlement bordering the western shore of the Rio Paraguay the Chaco has been recognized as the territory of various tribes of Indians who have lived almost entirely from products of the chase. Each tribe had its territory, recognized by its neighbors, where it was privileged to hunt and fish at will, where its members gathered during the dry winter season at large lagoons of permanent water, and where, when rains made water available through the country the Indians travelled about in families or bands stopping temporarily wherever fish or game offered a supply of food. Hunting of game animals was carried on only to supply bodily needs, and weapons available were primitive; bows of great strength, and long arrows were used by many, though a few treasured single-barreled shotguns or occasionally an old Remington, Sharp's or Ballard single shot rifle, relics of frontier days from the United States. The younger Indians especially were expert with throw sticks - sections of straight heavy tree limbs from 20 to 35 inches long, that were hurled with speed and accuracy for distances of

40 or 60 yards. These were especially effective against birds that travelled in flocks, and were used to advantage on bands of screeching parrots as they passed on the wing. At the Riocho Salado, a broad stream in the central Chaco, were hundreds of these throw sticks of various sizes, gathered on large sand bars or behind low banks on either shore. It was said that in the southern fall (February to April) when shorebirds were passing to the northward in migrating bands the Indians resorted to this region in their hunting. As sandpipers and plovers passed in flocks the Indians from concealment hurled their throw sticks through the close ranks of the birds with deadly effect and then retrieved broken winged birds and clubs from the water. For this use throw sticks were made from lighter woods, as many of the trees of this region are so dense in structure that the wood will not float. At other times the Indians covered their bodies with twigs from a leafy shrub that did not wither quickly, and in guise of a harmless thick-leaved bush stalked ducks or rheas, or whistled out Tinamous from hiding in the tall grasses. Such hunting was always carried on up wind as it was believed that rheas especially were able to scent the hunter - an easy matter perhaps in the case of these Chaco Indians. Tinamou nests were hunted for the eggs and in fact almost any bird was taken at times for food. The amount of game destroyed by Indians was however nominal and without appreciable result save in the case of rheas that were hunted mercilessly for plumes, or meat, while their eggs were secured at every opportunity. Methods of hunting that employed the burning of the grass grown savannas were destructive, but on the whole, any toll by Indians from the smaller birds was repaid by predatory foxes and cats killed for their skins.

Within the next ten years however the primitive condition of the Chaco will be largely changed as the fertile soil of this region will prove attractive to colonists. At the present time a movement is on foot to establish a colony of several thousand Mennonites in this region who will open and develop the country. This will mean great changes in original conditions that as elsewhere will be reflected in the bird life. The effect upon our migrant shorebirds is bound to be deleterious especially as it would seem that the Chaco forms a part of the great flyway traversed by our North American species in their north and south movements.

Game was sold in limited amount in Asuncion, ~~when~~ in August and September. Spotted Tinamou were offered by street vendors to housewives at their doorsteps or were brought to the hotels. There was some traffic in other birds also, but on the whole it appeared much less in amount than in Uruguay or Argentina. Game wold was drawn largely from the region tributary to Asuncion, as facilities for rapid shipment of perishable foods, save from along the railroad line leading to Posadas, Argentina, were lacking.

Chile Game Laws and Protection of Birds.

There are statutes relating to game birds among the laws of Chile but it is sufficient commentary on their value to say that on three occasions in Valparaiso I made attempt to get or see copies but was unsuccessful. Lawyers had heard of them but could not remember where they were to be found. It was said that the hunting season opened March 1 and continued until some time in October. There was no attention paid to hunting however other than that it was customary to request permission to shoot on large estates. I saw hunters out killing every bird encountered from sparrows and tiny flycatchers to gulls, in most cases simply for the sake of shooting, as small birds that were brought in were thrown aside. Those interested in birds deplored their destruction and the practice of killing small birds seemed to be universal. Before crossing to Chile I had been told that no permission was required for collecting specimens in that country, but in Valparaiso I was given a letter to the police, more in case I needed aid than for any other reason.

In the markets large numbers of tinamou (*Notornis meridionalis*) were displayed for sale, and others were sold on the streets. The usual sorts of small cage birds were offered in variety.

As hunting was carried on extensively in Chile the laxness of game laws was serious, especially since Chile has a considerable population in its central and southern sections.

Decrease of Game and Changes Incident on Settlement.

Changes in ecological conditions in the Argentine pampas through the extension of settlements by man and development of agriculture within the past 40 years have been extensive. The effect of this upon the fauna has been marked, and as always many forms of life especially among the more prominent species have been reduced in number. Though the population of Argentina, somewhat more than 8,000,000, is distributed over a broad area the bulk of it occupies the fertile pampas region adjacent to Buenos Aires. The city of Buenos Aires alone has 1,700,000 inhabitants, while approximately three-fourths of the total population is found in the provinces of Buenos Aires, Entre Rios, Santa Fe and Córdoba, only four in a total of 24 political divisions that comprise the republic. Naturally it is in this area that the stress of occupancy by civilized man has been most severe, and it is unfortunate for the species of shorebirds migrant from North America that a large part of them visit this region during their southern sojourn. For several it constitutes the site of their winter home.

Early explorers who visited the eastern pampas described them as a vast plains area, marshy or swampy in many places, grown with tall grasses that often reached to a man's shoulder as he sat on horseback; or, near the isolated hills of the Sierra Tandil and Ventana, as more rolling tracts covered with a variety of grasses. These conditions prevailed with little change until the seventies when a tide of immigration set in that gradually extended into the region around Buenos Aires and drove back or exterminated the original inhabitants, the Indians. As cattle grazing the main industry increased a rapid change in the ap-

pearance of the country was brought about. Cattle tracks packed the higher marshy ground, and winding trails made by the herds gave drainage to many pools and marshes. Hardsemen burned off dead grass in the fall to clear the ground for tender new growth the following spring. All this produced great changes in the appearance of the country. The ground became drier. Some species of grasses of luxuriant growth, under the combined inroads of pasturing and fire, disappeared, and for a period of two or three years large tracts became more or less barren, so that the ground dried and cracked in the sun. Following this new grasses came in forming a shorter turf like growth and these have persisted where they have not been replaced by extensive wheat fields or other crops.

At the present time the marshy open savannas of the Chaco region in the north seem to reproduce in a way the condition formerly present over the pampas. I found that through fire and grazing certain areas had become rather barren, while others, older, were covered with shorter grasses and plant growth, while low swales tended to change to firmer ground.

The same change through the natural drainage of swampy, marshy tracts has been seen in the United States during the settlement of the prairie region of the west, and as in Argentina and Uruguay, with increase in rural population and more intensive methods in agriculture, has been accompanied by decrease in wild life.

In Argentina large four-footed game has been killed off in the settled regions. Deer, guanaco, and the large armadillos have become scarce or exterminated save in the distant territories or on large estancias where the animals are protected. The same has been true to

a lesser extent with some of the larger birds. Near towns the screamer (known as Chaja) is scarce, the rhea has gone save where protected in preserves, and large storks, geese and ducks breed rarely though they return when in migration.

The changes in general appearance and conditions in the pampas took place at the same time as similar changes in the prairie regions of middle western North America. The effect, together with an increase in hunting in the two regions proved serious to some species of shore-birds that were accustomed to inhabit open regions either on the uplands or in marshy localities. Thus in the two decades covering the period between 1870 and 1890, such species as the Eskimo Curlew, Buff-breasted Sandpiper, Upland Plover, and Hudsonian Godwit especially were affected, and several others, though remaining common, became reduced in numbers. The whole matter was a simple case of a group of birds accustomed to inhabit a certain type of country becoming reduced in number through changes wrought by the advance of civilization and settlement by the white race. The effect on those species that had their winter metropolis in the fertile eastern pampas has been as certain as the destruction of forest inhabiting birds on small islands where the forest is suddenly cleared away to make place for cultivated fields. Some species will disappear entirely, others may continue but in lessened abundance.

The shorebirds that visit the Argentine in winter on the basis of their habits may be divided into three groups - those that frequent either upland or marshy prairie country, those that occur mainly on mud flats near the coast or the shores of large lakes, and those found as scattered individuals or small flocks anywhere at the margins of streams,

pools or lakes. Distinction between these three groups is marked by no hard and fast lines as occasional individuals may be found anywhere about water, but in a general way these divisions may hold. Those species accustomed to frequent the uplands have been killed or reduced in number as they were unable to withstand the combination of change in the country that they inhabit, coupled with heavy shooting both in north and south. These include the Eskimo Curlew and Upland Plover, and in part the Golden Plover and Buff-breasted Sandpiper. The second group though suffering from excessive shooting has been less seriously affected than the first, as there has been less change in its haunts. The Hudsonian Godwit however, a species combining large size with a tendency to fly in close flocks, has suffered heavily, more so than its smaller companions, and now is rare. The third group includes a variety of sandpipers that with all the other species have been reduced in number but have such an extensive winter range, and are so scattered that they have not been hunted systematically, nor have changing conditions crowded them out to such a degree.

After a year in the field in the region in question it is my candid opinion that no legislation will serve to preserve some of these birds in anywhere near their former abundance or in most cases to prevent their decrease below their present number. The Golden Plover, though inhabiting prairies, also ranges to some extent on distant, barren, coastal mudflats where it is safe from persecution, and so may continue. The Upland Plover, a species that ranges almost entirely in prairie country, will certainly not increase, more especially as it is unfortunate enough to have attracted attention as a table bird favored by epicures.

Among others those species frequenting secluded mud flats or found scattered over large areas in small groups may escape extensive diminution, especially where they are too small to be a desirable table bird.

At the present time we find the pampas divided in broad estancias frequently of large areas, with thriving towns scattered along lines of railroad radiating from the city of Buenos Aires.

Many of the estancias are utilized for grazing solely, with herds kept at a maximum with regard to available pasturage. On others attention is paid to dairy products as well, leading to the cultivation of alfalfa as feed. Elsewhere, especially in the drier western portion are tremendous tracts given over to wheat.

Though the bulk of the land is held in large tracts a gradual change in this respect is taking place as the land is being taken over in colonies composed of small farms. This leads to more intensive cultivation and a great increase in rural population leading inevitably to still further increase in hard conditions already imposed on the native animal life of the country.

With regard to birds especial interest attaches to the sources from which the colonists already arrived have come. A survey of the Province of Buenos Aires shows that about three fourths of the land is held at present by persons of Italian descent, while immigrants from southern Europe outnumber those from any other region. These people have brought with them their custom prevalent in their former homes of killing birds of all sizes for food, and have fostered a disregard for the protection of birds as a whole. Efficient administration of laws for the protection of game and other birds will have to struggle with this racial indifference so that enforcement of laws

is difficult. Education in the value of game and nongame birds will be necessary before any degree of success is attained.

Capture and Sale of Cage Birds.

Traffic in cage birds was considerable in towns throughout Argentina and the neighboring countries, and bird catching was a recognized profession. In the capital cities of the provinces, and in Buenos Aires, were large bird stores where a variety of species were offered. These included specimens from Paraguay and Brazil, as well as Argentina, while with them were occasional Old World Quail, Thrushes or Goldfinches, with a few Japanese Robins (*Miothrix*), and a great variety of Canaries. Among Argentine birds commonly seen may be mentioned the following: "Brazilian" Cardinals (*Paroaria* *gambellata* and *P. canistrata*), Cowbirds (*Molothrus bonariensis*), Choclos (*Geothlypis trichas*), Yellow-breasts (*Basileuterus virassens* and *B. culicivora*), Red-breasts (*Prunella militaris*), Chingollos (*Arremonops canorus*), Grosbeaks (*Phainopepla nitens*), Derby Flycatchers (*Pitangus fuscus*), various Thrushes, Spoonbills (*Alula alula*), Rails (*Limnodromus exilis*), together with a considerable assortment of Parrots and Parakeets, and occasional individuals of other species. On several occasions I noted Cardinals (*Cardinalis cardinalis*), but all apparently were of Mexican subspecies. In Mendoza and Tucumán in March and April, 1921, Bobolinks (*Dolichonyx oryzivorus*) were sold as cagebirds in some ^{number} under the name "Charlatan." This species passes the winter season in the Chaco.

In addition itinerant street vendors sold birds of various kinds on the streets. It was usual for these men to carry a large cage containing fifteen or twenty Cowbirds, Derby Flycatchers, or what-not, while perhaps six or eight more clung to the top of the cage outside. These

last were claimed to be ~~very tame~~ very tame, as they had been reared by hand, but in most cases were merely wild trapped birds stupefied by some drug so that they did not attempt to fly.

Conditions in many of the large bird stores were bad. Birds were confined in small crowded cages piled one on the other, dirty and foul smelling with frequently little chance for ventilation.

Birds with broken legs or wings were seen frequently, and many were dirty and bedraggled. Smaller stores frequently handled the captives with much more care and cleanliness. *than the larger ones.*

Birds in cages were observed everywhere, particularly among the better class of people. It was common to have a large, more or less ornamented aviary in the patio or courtyard, with thirty or forty birds confined in it, while smaller cages might contain additional, less gregarious species. Zoological Gardens in Buenos Aires and Montevideo were well-stocked, while less pretentious exhibits were found in the larger cities of the provinces. About ranches and country places parrots, rheas, spur-winged plover, screamers, etc., captured while young and reared by hand wandered fearlessly about in company with domestic fowls. On the whole traffic in living birds in proportion to the population was much more extensive than with us.

Popular Ignorance with Regard to Bird Migration.

The countryman in the southern part of South America is familiar in a way with migratory movements among birds but has no conception of their magnitude. When swallows, fork-tailed flycatchers or other recognized migrants appear in spring they are said to have come from Brazil, while ducks, upland geese and snipe that arrive in the central provinces with the coming of cold weather are noted as breeding birds from Patagonia. There is no recognition of the fact that the golden plover, upland plover or barn swallow are immigrants from the northern hemisphere, and persons are incredulous when informed that this is true. Migration in Europe where birds travel from the Mediterranean countries to Africa is conceded as these birds are passing toward the Equator. That some cross the tropical regions ⁱⁿ either Old or New Worlds arouses general disbelief. Even among men of scientific training these facts were in many instances unknown. A certain number of those acquainted with ornithology held that among golden plover, Bartramian sandpipers, and other shorebirds, ~~that~~ there were two distinct sets of individuals, one that nested north of the equator and at approach of winter migrated south perhaps into the tropics, and a second, breeding in Patagonia, the islands of antarctic seas, or even the great unexplored antarctic continent, that came north after the breeding season perhaps as far as Brazil to escape the cold. This belief was based upon the seemingly irregular occurrence of supposedly migratory birds, and upon records (scattered or few) of certain species that were found in small numbers in the pampas during the northern breeding season. All were forced to admit that though the birds were seen in summer there were no actual records of their nests and eggs in the southern hemisphere, and that supposed records were based entirely upon seeing the birds themselves. Dr. Clementino

Onelli, Director of the Zoological Gardens in Buenos Aires an advocate of this theory, favored me with a memorandum on the subject, of which a free translation of a part follows:

“Views on the Migration of Birds.

“What do birds seek during their migrations? Certainly a climate agreeable to their being where they may find food that they desire. Between 80° and 10° of latitude in each hemisphere, birds may find readily during the year a climate suitable where food is available. A bird that relishes the cool summer of Hudson's Bay would encounter pleasant warmth in the winters of Florida and New Orleans, and one that spends the summer near New Orleans and Galveston, would find sufficient heat in the winters of Tampico and Yucatan.

In migratory birds, the journey is not undertaken as the pleasure trip of a tourist, nor at the bidding of instinct, but arises from physiological necessity, so that I see no reason for them to transport themselves from one hemisphere into another. For a bird from North America, ^{to} come into this Southern Hemisphere would need to cross the immense wooded regions of the drainage basins of the equatorial rivers, above which, if the air is cool at an elevation of thousands of metres, it is entirely too hot below. Also it is known that these birds do not seek forests but the open country. Logic does not permit me to believe in migrations of such great extent. At the Zoological Gardens during the silent nights following cold days at the close of March where temperature reaches 8° to 10° centigrade, I have heard the calls of flocks of waders that came clearly from the south and passed directly toward the north. For a week I do not hear the characteristic calls of these shorebirds in migratory flight, and in a week these birds might fly many, many miles. But in the changeability of the capricious climate of the pampas there comes suddenly a day of heat of 27° C., and during the pleasant night that follows I hear again the passage of flocks

of waders, this time come from the north to cross above the Zoological Gardens and to be lost toward the south. If these shorebirds can within 24 hours return to pass the same point where they were noted a week previous, it must be said that they were not far, probably in the Province of Corrientes where the winter is more open than in Buenos Aires. C.O."

The belief in a divided breeding ground for certain shorebirds has received more or less attention in earlier years. There are species of birds as the Pied-billed Grebe, Cinnamon Teal, Fulvous Tree-duck, and many others that have a breeding range in both North and South America. There has never been any indication however of the breeding of such species as the Golden Plover, Hudsonian Godwit, the two species of Yellowlegs and the other forms considered as migrants from the north, south of the equator. The scattered individuals of these birds that remain in the Argentine Republic during the northern summer are wounded, sterile or otherwise diseased individuals that have been unable to perform the long flight northward, or that have lacked the physiological incentive to do so. The few supposed occurrences of their nesting have on investigation proven erroneous. The migration and movements of these species is so well understood at present that there is absolutely no doubt but that they nest in the north and pass south of the equator only in migration.

Present Status of North American Migrant Birds.

In brief outline there is given below a statement of the present status of the more important species that come into Paraguay, Uruguay, Argentina and Chile as migrants from North America. This list is not complete as shearwaters and petrels that migrate between the northern and southern hemispheres are omitted, and a number of land birds that penetrate casually or in small numbers into the northern tropical area of the section treated are not included. The intention is give a brief review of forms that reach this region in moderate abundance, or that were found in former times in numbers.

In general I was disappointed in the number of individual birds seen particularly among the shorebirds as the abundance of these birds was far less than had been reported in earlier years.

There are 35 or more species ^{from this region} in addition to those treated here that range in both North and South America. In most cases it is known that these birds have breeding areas on both continents; birds from the two regions may be distinguished by the slight differences in color or size that mark subspecies or geographical races in most of the species under discussion. As series of specimens become available further differences between birds from North and South America become apparent in species where such distinctions have been overlooked, and in the end it will be found that most of them are distinct. It has been necessary in the present case to eliminate the Yellow-billed Cuckoo as a North American migrant, as a bird that I secured in Uruguay proves to be the South American resident form and not a migrant from the north. The case of the Gull-billed Tern is doubtful. The birds from Argentina have been

considered as migrants from North America, but recently the South American form has been considered distinct. The species is known to nest on Mexicana Island at the mouth of the Amazon River, and southern migrant birds may come from this colony or others on the Atlantic Coast of South America. The Cinnamon Teal is known to breed in Argentina, and southern races have recently been recognized for the Duck Hawk, Everglade Kite, and White-tailed Kite; others as the Turkey Vulture, Burrowing Owl, Vermilion Flycatcher and Black Phoebe have been recognized as different in north and south for many years.

Scientific names of the birds given in the following list are given in accordance with the third edition of the A. O. U. Checklist (1910), and its supplement as published in the Auk for July, 1920 (pages 440 to 449).

Parasitic Jaeger. Stercorarius parasiticus.

This jaeger has been known in Argentina from a specimen secured on the coast of Buenos Aires below Cape San Antonio by G. H. B. Grant in February, 1909. Apparently however it may occur in abundance during "fall" migration as from November 4 to 7, 1920 near where Grant secured his specimen I encountered a flight of these birds travelling south along the line of the beach. The birds passed singly or in little bands of five or six that drifted steadily southward. Though few were in sight at any one time I estimated that from 300 to 500 passed during each day. A heavy southeastern storm that continued during this period may have driven the birds in from a usual migration route across the open Atlantic, or they may have been overlooked in this region through lack of observers at the proper season.

Long-tailed Jaeger. *Stercoraria longicauda*.

The Long-tailed Jaeger has recently been reported from the coast of Buenos Aires at Mar del Plata as migrant during the month of October.

Cabot's Tern. *Sterna sandvicensis aculeata*.

Recorded as a migrant in small numbers on the coast of Argentina.

Royal Tern. *Sterna maxima*.

Found in small numbers on the coast of Argentina. On November 4, 1920 one was taken in company with other terns on the coast of Buenos Aires below Cabo San Antonio. Several were noted at the mouth of the Rio Ajo a few leagues farther north on November 15, and on January 9, 1921 at Carrasco near Montevideo, Uruguay I found forty or more gathered in a close flock on the beach. A few were noted in this same locality on January 15.

Arctic Tern. *Sterna paradisica*.

Recorded in migration along the coast of South America.

Golden Plover. *Pluvialis d. dominica*.

The Golden Plover, familiar as a species that performs an extended migration passes the northern winter season in the eastern pampas from southern Santa Fe and Córdoba south at least to Bahía Blanca, probably to the mouth of the Rio Colorado and Rio Negro. Formerly abundant in flocks of two or three hundred individuals, the birds are at present hardly to be considered common. The species is found in Argentina from the end of August until the middle of March. In 1920 I noted Golden Plovers first on September 6 in the Chaco west of Puerto Pinasco, Paraguay and until September 25, the species was observed at short

intervals passing southward.

On October 23 in a drive of 75 miles between Dolores and Lavallo, eastern Buenos Aires, I found small flocks scattered across the open pampa and estimated the number seen during the day at 260. Near Lavallo, 100 were seen on November 7, 150 on November 8, and 150 on November 15. Between Lavallo and Santo Domingo a distance of 55 miles, on November 16 I noted only about thirty. A few were observed December 15 between Saavedra and Carhué and from December 16 to 18 scattered birds were recorded near the latter locality. The localities given above, all in the Province of Buenos Aires are in the region where the species formerly occurred in great abundance.

Northward migration began apparently with a small flock observed at La Paloma on the coast of Uruguay on January 23, 1921, and northward movement was recorded in Uruguay at San Vicente January 24 and 30, Lascano, February 7 and 8, and Rio Negro, February 17. At Guaminí, in the Province of Buenos Aires, fifteen birds, migrants from the south, were recorded the evening of March 6, while on March 23 four were noted in flight at Tucumán near the base of the Andes in the Province of Mendoza. On the evening of April 5 the whistle of the Golden Plover was heard amid calls of other shore birds as they passed to the north over the city of Tucumán in northern Argentina. The species has been known to rest during migration on the barren mountain plateaus of the higher Andes.

The regions worked covered roughly the center of winter abundance of this species, but it was recorded only as fairly common at best. However, as the winter range is extensive the number of Golden Plover remaining is still considerable.

Semipalmated Plover. Charadrius semipalmatus.

This species has been recorded from Puerto Deseado, in the territory of Santa Cruz and from the high mountains of Jujuy in northern Argentina. It has been taken also on the coast of Chile.

Eskimo Curlew. Numenius borealis.

Formerly the Eskimo Curlew was one of the abundant shorebirds that wintered in the eastern pampas, where it frequented high ground more or less bare of vegetation from the first of September until the first of March. Since 1900 the species has been very rare, and at the present time is on the verge of extinction, if indeed living individuals still exist. None were observed during my field work.

Hudsonian Godwit. Limosa haemastica.

The Hudsonian Godwit is another species that as late as the seventies was recorded in Argentina, especially near Cabo San Antonio in Buenos Aires, in great flocks that frequented mud flats near the coast. As occasional individuals, probably those that had been injured in some way, were noted throughout the year the species was supposed to be a permanent resident in the southern hemisphere, which however, is not the case. For at least twenty years the species has been counted as of rare occurrence in regions where formerly flocks containing as many as 1000 individuals were common. I found four near Lavalle, Province of Buenos Aires on November 13, 1920, and another flock of four two days later. At Guaminí from March 3 to 8, 1921 there was a small flight of these fine birds from the south and in all about 50 were observed. The species was one of rare occurrence.

Stilt Sandpiper. *Microhalea himantopus*.

The Stilt Sandpiper is reported as fairly common in eastern Buenos Aires but I failed to encounter it in that region. In the Chaco west of Puerto Pinasco, Paraguay, on September 20, 1920 a flock of a dozen appeared, and from then until September 25 I found the birds fairly common in southward migration in bands that numbered as high as 40 individuals. Apparently the species is local in occurrence later as none were seen farther south. It has been recorded from Uruguay.

Greater Yellowlegs. *Totanus melanoleucus*.

The present species is common and widespread throughout Argentina and Uruguay. Though undoubtedly somewhat diminished in number it is still holding its own as it is less specialized or limited in selection of habitat than such species as the Eskimo Curlew. It is another species recorded throughout the year in Argentina, but records for the months when the bulk of the species is on its northern breeding grounds, are based on crippled or diseased birds that are not breeding.

I saw the Greater Yellowlegs first on September 8, 1920 in the Paraguayan Chaco west of Puerto Pinasco, and until the 24th of September the species was noted passing slowly in southward migration. J. L. Peters who was located at the Estancia Huanañuan in southern Rio Negro (Patagonia) recorded the first arrival on October 5, 1920 and found the birds tolerably common after that date. During October, November and December I noted Greater Yellowlegs in small flocks or alone, at many localities through the pampas, especially in the eastern part of the Province of Buenos Aires. They were common in marshy areas in eastern Uruguay in February, and during the first week in March passed through Guaminí in the Province of Buenos Aires in abundance, from winter ranges in Patagonia. Near Tamuyan, Mendoza

at the eastern base of the Andes the species was observed from March 25 to 28. At Tucuman, Greater Yellowlegs were recorded flying with other shorebirds on April 5. Near Concepcion, Chile they were seen on April 24 and 25.

The species passes south through Patagonia to Tierra del Fuego.

Lesser Yellowlegs. Totanus flavipes.

The Lesser Yellowlegs is even more common than its large relative, the preceding species, and may be considered as holding its own in abundance. The winter distribution of the species is vast, so that the individuals composing it are not concentrated in any limited space. Like the other Yellowlegs occasional individuals are recorded in Argentina in May, June and July, but such birds do not breed and must be considered stragglers that have been unable for some reason to perform the long migration to their northern nesting ground.

The species was the earliest of the northern migrants that I recorded, as three, flying slowly and appearing somewhat tired, were observed at Las Palmas in the north Argentine Chaco on July 31, 1920. The species was not seen again until September 5 when it appeared west of Puerto Pinasco, Paraguay and was recorded as common there until the end of September. At Humahuac, Rio Negro, J. L. Peters noted their arrival on September 19, 1920 and found them common after September 27. Individuals were seen at many scattered localities through central Argentina, and on November 23 one was noted below General Roca on the Rio Negro in northern Patagonia. Lesser Yellowlegs were common in eastern Uruguay in February, were found in migration at Guaminí, Buenos Aires in early March and at Tumbán near the mountains at the close of the month. In Tucuman, northern Argentina, the species was noted until

April 15 passing at night with other shorebirds on return migration to the north.

The species passes south in Patagonia to the Straits of Magellan.

Hudsonian Curlew. *Numenius hudsonicus*.

This Curlew is common as a migrant on the coast of Chile, and ranges down as far as Tierra del Fuego. Most of them had departed north when I reached Chile, but I noted one on the beach at Concon on April 25, 1921.

Solitary Sandpiper. *Tringa solitaria*.

The present species has a wide distribution in South America where it occurs scattered through the country as in the United States. The species was an early migrant as it was seen at Formosa on the Rio Paraguay, August 23, 1920. From September 6 to 23 the species was noted regularly west of Puerto Pinasco, Paraguay. It occurs commonly in the Province of Buenos Aires, in suitable localities, while one taken in Southern Patagonia on the Rio Negro near General Roca on December 3 was at about the southern limit for this bird. In eastern Uruguay the species was fairly common in February, 1921 and one was seen at the town of Rio Negro, Uruguay in the western part of the country on February 17. On the evening of April 5 a number passed over Tucuman in northern Argentina in flight toward the north.

Upland Plover or Bartramian Sandpiper. *Bartramia longicauda*.

This species, formerly abundant, arrived in central Argentina and Uruguay in flocks in October and remained until April. In recent years its numbers have greatly decreased, though in some regions in Buenos Aires

a slight increase has been noted due without doubt to protection in the north. I found the bird rare. On September 29, 1920 a few were passing south at Puerto Pinasco, Paraguay, while others were noted October 3 at Villa Concepcion, also on the Paraguay River. The species was next observed in eastern Uruguay January 23, 1921, and again on February 7. On the latter date return migration seemed under way as two seen were flying due north. Others were recorded in northward flight at Concordia, Province of Entre Rios, Argentina, February 22, and at Guaminí, Buenos Aires, March 3 and 4. At Tucumán in northern Argentina on the evening of April 5 the species was heard calling on 5 occasions as the birds passed northward during a heavy mist. On the evening of April 5 between 9:45 and 11:30 I recorded the calls of Upland Plover 38 times, among notes of many other Shorebirds. The northward flight at this point is a regular feature on April evenings, but all remarked that the birds were less and less numerous each year.

At the end of February and the beginning of March, Upland Plover were served in the restaurants of Buenos Aires under the name batitu, in spite of a law prohibiting the sale of game at that season.

Semipalmated Sandpiper. *Tringoides macularia*.

The Semipalmated Sandpiper is of rare occurrence in Argentina as it has been recorded only in Chubut in Patagonia. I noted one near Puerto Pinasco, Paraguay on September 1, and a flock of a dozen in the same region on September 20.

Buff-breasted Sandpiper. *Tringoides subruficollis*.

The present species, formerly common in winter in the Province of Buenos Aires, has decreased greatly in numbers, until now it is of

rare occurrence. A single bird of this species was recorded at Puerto Pinasco, Paraguay on September 21, 1920, and another was noted on November 13 near Lavalle in eastern Buenos Aires. From March 3 to 6, 1921 I found small flocks near the shores of the lakes at Guaminí where the birds were in passage toward the north. About 50 were noted at this last point, a small number considering the fact that 50 years ago they were recorded in flocks containing several hundred.

Sanderling. Crucethia alba.

The Sanderling occurs on the eastern coast of South America south into Patagonia. On November 6, 1920 I shot one on the beach below Cape San Antonio, Province of Buenos Aires, and on the following day noted about twenty divided in three flocks. All were passing south, evidently in migration. The species is reported to be more common on the Chilean coast but I reached that point too late in the season to observe the main flight. A flock of 25 passing northward along the coast was recorded at Concepcion north of Valparaiso on April 29.

Pectoral Sandpiper. Pisobia maculata.

The Pectoral Sandpiper is one of the few species of shorebirds reaching South America that still remains in abundance. It passes south into southern Patagonia. It was first observed on September 9, 1920, west of Puerto Pinasco, Paraguay and was recorded in that region in southward migration until September 23. At Manzanera in Rio Negro J. L. Peters noted Pectoral Sandpipers on October 6 and 23, 1920. In the Province of Buenos Aires, Argentina I recorded it casually during October and December, and again in March. Small numbers were noted in Uruguay during January and February and northward migration was ap-

parently under way on February 8 near Lascano. Others in migration were noted near Tunuyan, Province of Mendoza on March 26, when I found two that I shot so fat that it was difficult to preserve them as skins.

White-rumped Sandpiper. *Tringoides fuscicollis*.

The White-rumped Sandpiper in migration passes south as far as Tierra del Fuego. It is today the most abundant of our migrant shore-birds in Argentina, and was one of the few species that came up to my expectation in number seen. The species arrived near Puerto Pinasco, Paraguay on September 6, and was common there in southward migration until September 21. From October 21 to November 15 I found the species abundant on the coastal mud flats of eastern Buenos Aires, where it was on its wintering grounds. It was not unusual to observe 2,000 or more in a day on the tidal flats at the mouth of the Rio Ajo. White-rumped Sandpipers were recorded in abundance below Bahía Blanca, on December 13, and were fairly common near Carhué from December 16 to 17. Near Guaminí ~~in~~ from March 3 to 8 the birds passed in northward flight to feed about the shores of large lakes: I recorded from 75 to 2,000 daily. Flocks of males chattered and fought in the warm fall sun, apparently animated by the mating fever that was driving them on their long journey northward.

Baird's Sandpiper. *Tringoides bairdi*.

Baird's Sandpiper is fairly common in Patagonia south of the Rio Negro and occurs in passage at more northerly points. J. L. Peters recorded it first at Huanakuan in Rio Negro on September 12, 1920 and found it common after September 20. It has been recorded from Chile. I noted it only at Guaminí, Buenos Aires on March 5, 1921 when three were seen in company with White-rumped Sandpipers.

Spotted Sandpiper. Aegialitis macularia.

The Spotted Sandpiper is a regular migrant in South America as far as Bolivia and southern Brazil and has been recorded in Tucuman, in northern Argentina. On October 25, 1920 I secured one ~~below Cape~~ ^{near the mouth of the Río Ajó} ~~San Antonio~~ on the coast of Buenos Aires apparently the most southern point at which the species has been known.

Knot. Tringa canutus.

The Knot has been recorded in small numbers along the eastern coast of Argentina from the Province of Buenos Aires south to Tierra del Fuego. I found a single individual in company with White-rumped Sandpipers, below Cape San Antonio, Buenos Aires on November 7, 1920. The species is rarer than formerly.

Turnstone. Arenaria interpres interpres.

The common Turnstone has been recorded south to Talcahuano and Paposo, Chile. I did not meet with it.

Ruddy Turnstone. Arenaria interpres morinella.

The Ruddy Turnstone ranges south in winter to southeastern Brazil, and has been recorded from the Falkland Islands.

Surf-bird. Anhinga melanotos.

Recorded as migrant at the straits of Magellan and on the coast of Chile. The species is considered as rare everywhere.

Red Phalarope. Phalaropus fulicarius.

The winter home of the Red Phalarope is imperfectly known as the bird ranges at sea. One was secured in the Province of Buenos Aires, August 12, 1879, and the species has been reported from Patagonia. It

seems more abundant in the Pacific as there are several records for the coast of Peru.

Northern Phalarope. Lobipes lobatus.

The Northern Phalarope like the preceding species ranges at sea during the winter season, and comparatively few are found as far south as Southern South America. The species has been taken casually in the Argentine Chaco and in Patagonia.

Wilson's Phalarope. Steganopus tricolor.

Wilson's Phalarope ranges through Argentina during the northern winter season and though it can not be called more than tolerably common, it is more numerous than has been supposed, as at this time it is in inconspicuous gray winter plumage, and is easily confused with small sandpipers whose company it seeks. On November 15, 1920 I found two small flocks at the mouth of the Rio Ajo in Buenos Aires, and from December 15 to 18 noted several near Carhué in the western part of the same province.

Swainson's Hawk. Buteo swainsoni.

Of regular occurrence in northern Argentina. A hawk that I supposed to be this species was observed soaring with native hawks above the mountain range back of Tafi Viejo, Tucuman on April 17, 1921.

Nighthawk. Chordeiles virginianus.

The Nighthawk is found south as far as Buenos Aires though I did not meet with it. Decrease in numbers in this species noted in recent years must be attributed to shooting and changes in its nesting haunts due to pasturing and agriculture in the North.

Barn Swallow. Hirundo erythrogaster.

The familiar Barn Swallow travels southward in winter as far as the Province of Buenos Aires where it frequents open country, often in company with other Swallows belonging to native species. On September 24, 1920 I observed the first Barn Swallows in the distant Paraguayan Chaco west of Puerto Pinasco, and noted others on the Rio Paraguay on September 30. Others were seen October 19 near Loxama, Province of Buenos Aires and November 15 on the coast near Lavalle in the same province. The species while regular in occurrence is not abundant on the pampas though said to be common in the Chaco, as here it reaches the southern end of its winter range. On May 10, 1921 when at sea over 100 miles from Cape Mala, Panama, and about 200 miles west of the Colombian coast two Barn Swallows appeared about the steamer, seeming very tired and alighted on board. One was captured and carried in to Balboa, where I released it the following morning to continue its northward journey.

Cliff Swallow. Petrochelidon lunifrons.

Cliff Swallows have been recorded a number of times from Argentina, as far south as the Province of Buenos Aires. None were observed during my work in that region.

Olive-backed Thrush. Hyllocichla ustulata swainsoni.

The Olive-backed Thrush has been recorded at Lules near Tucuman in Argentina. The bulk of the species however seems to remain farther north.

Bobolink. Dolichonyx orizivorus.

The familiar reed-bird or rice-bird of the United States travels southward in winter to a winter home in the Chaco where it ranges in

flocks that at times are said to number as many as 5,000 individuals. It is recorded south into Santa Fe and west to Tucuman at the eastern base of the mountain ranges running parallel to the Cordillera. As my work in the Chaco ended with the close of September I did not meet with the winter herds of this interesting bird, but in March and April noted occasional captive Bobolinks, then molting into breeding plumage, offered for sale in Mendoza and Tucuman under the name of "Charlatan." This species will undoubtedly be affected by settlement of the Chaco, which seems to form its winter range, especially since many colonies of Italians are taking land in that region. Thus far however, it seems to be holding ground without difficulty. I regretted that circumstances prevented me from studying the Bobolink during the winter season when it was in the Chaco, as it was rumored that the birds may develop some economic importance through destruction of grain.

Future of North American Migrants.

The great changes that have been wrought in the vast prairies of the temperate portion of the southern continent with their effect on the fauna, have been outlined in preceding pages. It remains to consider briefly what the future may bring. Personally I consider the outlook for some of our birds as decidedly gloomy. The pampas and the Chaco taken as a whole are fertile regions that are capable of supporting many times their present human population. At present the majority of this land is held in large estates which are due to be broken up into smaller holdings. The climate of this area is salubrious and the soil rich. Furthermore, South America is the only one of the continents that escapes direct taxation to defray the cost of the great war, facts all tending to swell the present stream of immigrants that is pouring into the region under discussion. The effect upon the avifauna is certain. Those few species of our migrant birds that are restricted in their winter range to the pampas are certain to suffer diminution. The Eskimo Curlew now is practically, if not really, extinct. The Bartramian Sandpiper and Buff-breasted Sandpiper cannot hope to maintain their present slender numbers, and I look for decrease in the case of the Golden Plover. Small species, such as the Sanderling that inhabits mainly the coastal regions, and White-rumped Sandpiper that ~~is~~^{is} found on mud flats will be little affected. Nor will the change be felt noticeably by the Greater and Lesser Yellowlegs, species that have a vast distribution when absent from their breeding grounds. The Bobolink that winters in the Chaco may be seriously reduced. It is a species that gathers in flocks where food is abundant, and has been the cause of serious complaint in rice fields. It may prove to be injurious to some of the grains that will

eventually be grown in its winter home in the Chaco, and so be a target for destruction. The Barn Swallow and other small land birds will from their habits, not be affected.

Treaties for the Protection of Migrant Birds.

Recently many have advocated the negotiation of treaties for the protection of birds, with the republics of Latin America similar to that now in force between the United States and Canada, with the idea of securing further protection for our species of birds that pass in migration to the south of the United States. It is probable that on proper representation from this government such treaties can be consummated, but whether such a course is advisable at this time remains to be considered. In substance such treaties would require on the part of Uruguay and Argentina that our birds, mainly shorebirds, be accorded protection during the period in which closed seasons for hunting the principal sorts of native game have already been established, i.e., from September 1 to April 30 in Argentina, and from September 1 to March 29 in Uruguay. Definite closed seasons protecting these birds would need to be established in Paraguay, and would require to be put in force in Chile. Open seasons for the hunting of Upland Plover, Golden Plover and Yellowlegs might be demanded in Argentina and Uruguay. In return the United States would give the protection accorded these birds at present, and might in addition provide that game birds, tinamous, ducks and geese native in the southern countries, be prohibited from import into the United States for sale as food.

In Uruguay general sentiment toward the enactment of a treaty protective to birds would probably be favorable. Uruguayans are progressive and active in adopting North American ideas in all lines of work. The country is small, fairly well settled, and has an efficient administration of law through the rural police. Officials connected with the Defensa Agricola, the organization that would probably have the

administration of any treaty act are favorably disposed toward bird protection.

Circumstances in Argentina are somewhat different. The prevailing ideas among older men in scientific circles were decidedly pessimistic with regard to matters relating to game or insectivorous bird protection. These men had seen great changes and destruction in the native fauna, and held gloomy views of the future. They believed that their government would not consider seriously any attempt at international protection of birds. Younger men were interested in the idea but in the main held that education of the people was a necessary preliminary to any attempt to establish a bird protective treaty. Comparatively few considered that such a step would be accompanied by success at the present time. I found the general public utterly indifferent to the protection of birds.

In Paraguay there was practically no sentiment in either official or private circles with reference to bird protection.

The attitude in Chile in such matters was largely indifferent though laws providing a closed season for hunting have been established.

After due consideration I ^{do} not believe that protective treaties between this government and Argentina, Paraguay or Chile would have definite value in giving protection to our migrant birds. This conclusion is based on the following facts:

1. There is no definite scheme at present in these countries for the handling of game protective matters. Game laws have been passed but their administration has been left to the police. As yet there have been no game departments, either national or provincial established.

2. There is need for preliminary education of the people along the lines of game and insectivorous bird conservation. Game laws have

been set up but there is little sentiment for their observance. Until such sentiment is established in a majority of the population there can be no successful international cooperation in the protection of game.

3. At the present time the main game birds that are hunted are ducks, geese and tinamon. Although shorebirds are killed in numbers they are taken mainly by persons who shoot all kinds of birds indiscriminately. Hunting of shorebirds is not a recognized sport in itself, nor is the economic value of these birds to agriculture recognized as with us. Sportsmen therefore will not be active in urging the protection of this group of birds. In other words definite protection accorded them by the government will be looked on more as a hardship than as a benefit.

4. Government authorities though they may accede to a request to establish a treaty will not be eager to spend the money necessary to put such a pact in active operation. They will see little benefit to accrue from such action.

In my opinion any action looking toward the establishment of bird protective treaties between the United States and Argentina, Paraguay and Chile should be delayed for a period of two years or more, i.e., until 1923 or later. At that time it will be possible to gauge the education of public opinion with regard to the preservation of game and other birds, without necessity for further field work, and the course to be pursued governed accordingly.

At the present time a protective treaty can be arranged successfully with Uruguay. Unless it is desired to use such a treaty as an opening leading to similar action in other neighboring countries it is recommended that action here also be delayed as the area where our birds are abundant in Uruguay is limited and there would be little return in actual protection of our migrants.

September 21, 1921

A. Wetmore



36513-H



36513-I



36513-K



36513-D



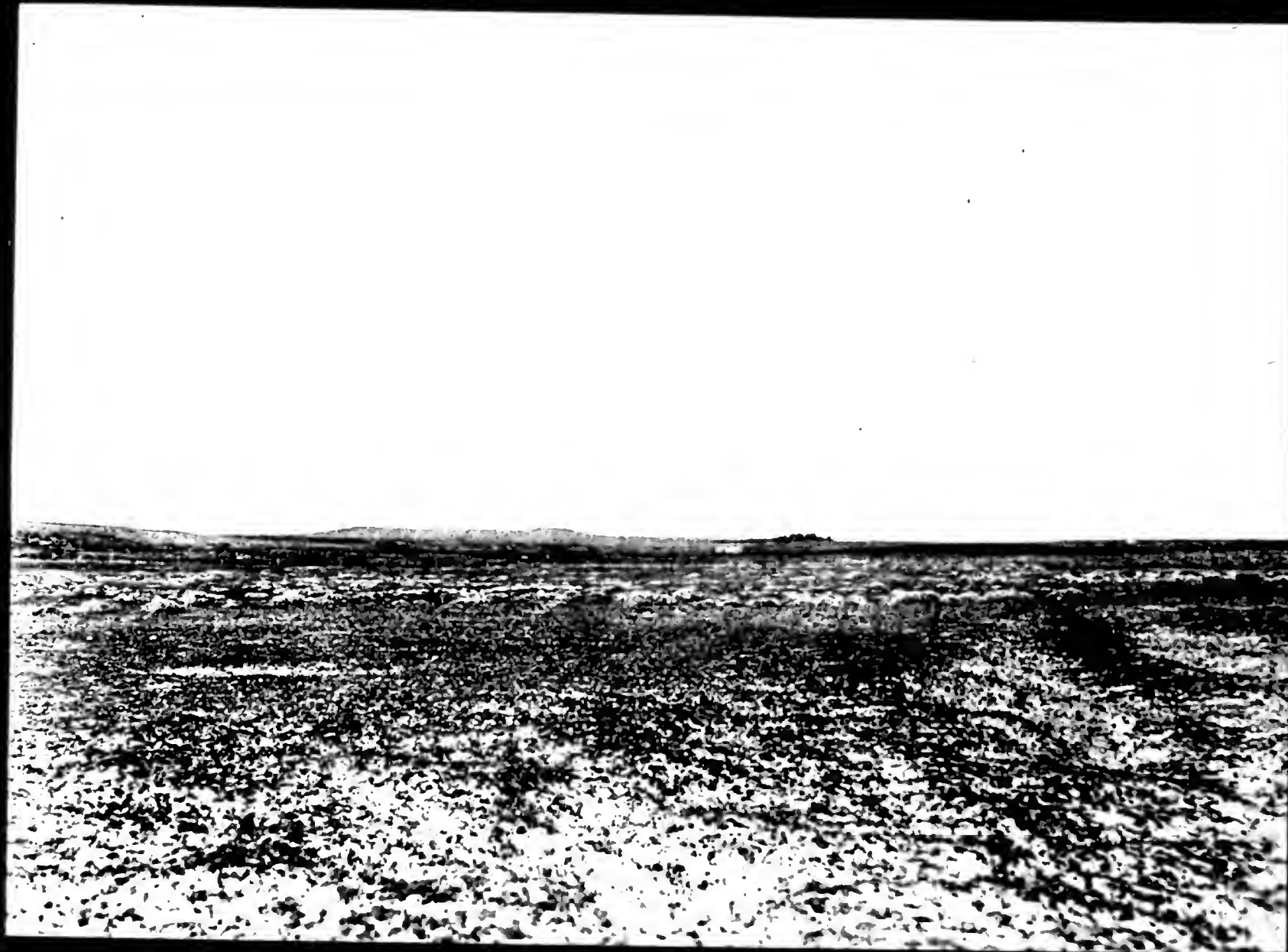
36513-E



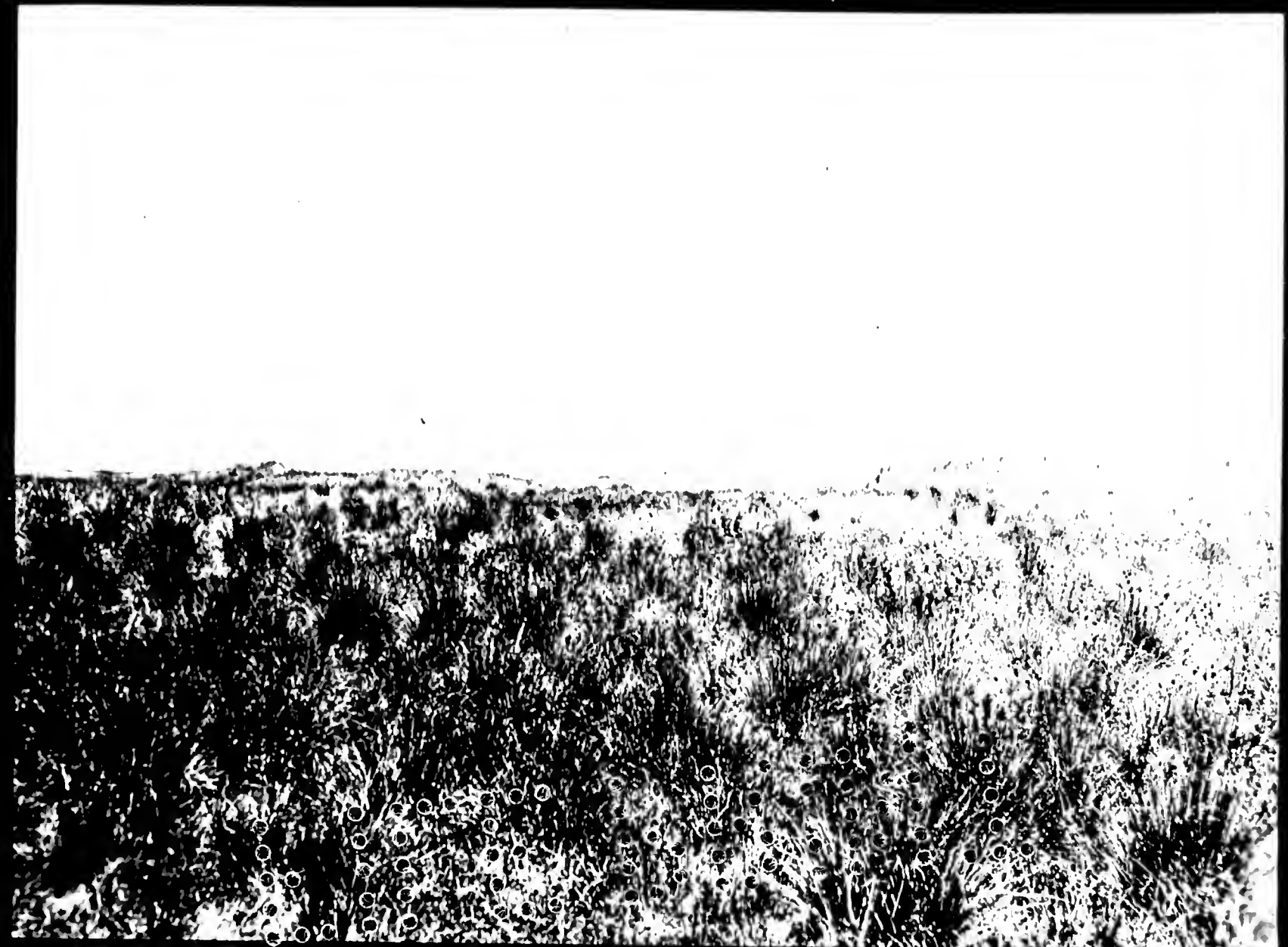
36513-F



36513-J



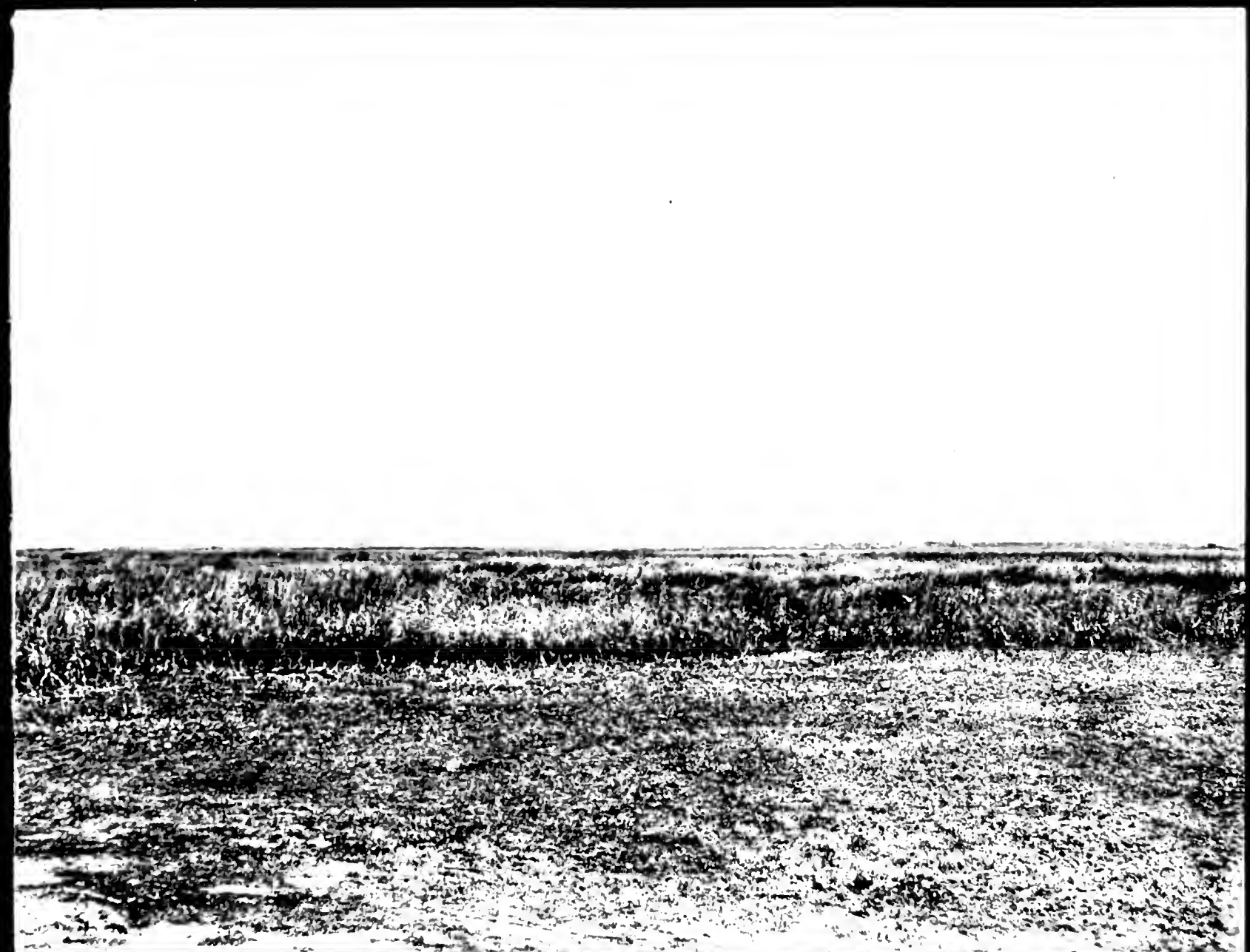
36513



36513-a



36513-b



36513-c

— Report on game laws, ^{and the hunting of game in} ~~of~~ Argentina,
Uruguay, Paraguay and Chile. —

Introduction

Account of game laws of and hunting in

Argentina.

Uruguay.

Paraguay.

Chile.

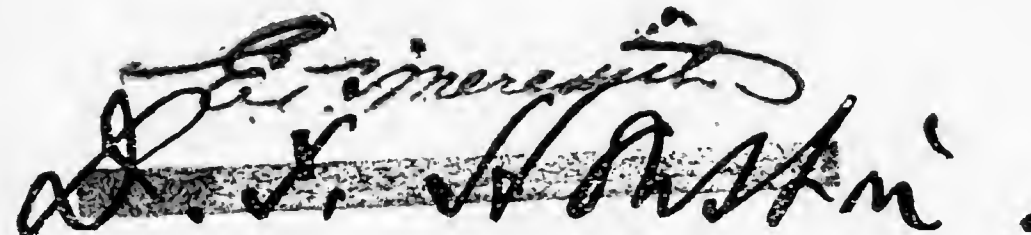
General Summary.

*This permit will expire on the thirty-first day of December, nineteen hundred and _____,
is not transferable, and is revocable in the discretion of the Secretary of Agriculture. The permit must be exhibited
to any person requesting to see the same.*

*This permit is granted by the Secretary of Agriculture and accepted by the permittee on the express condition
that the permittee will not violate any of the provisions of the Migratory Bird Treaty Act or of the Regulations
thereunder.*

*This permit shall not be construed to authorize the possession, purchase, sale, or transportation of migratory
birds or their nests or eggs in violation of any State law or regulation.*

This permit is not valid unless countersigned by the Chief, Bureau of Biological Survey.

A handwritten signature in dark ink, appearing to read "L. B. Austin", is written over a horizontal line.

Secretary of Agriculture.

Countersigned:

Chief, Bureau of Biological Survey.

TRACHEOPHONAE.

Mesomyodian Passeres with (usually) a single pair of syringeal muscles attached to the middle portion of the bronchial semirings, the syrinx tracheal, the lower end of the trachea consisting of thin, membranous walls; about six of the usual semirings extremely thin, sometimes obsolete, the bronchi with both outer and inner tympaniform membranes, vibratory tracheal membranes being also present; the few muscles (usually only one pair) wholly lateral; a processus vocalis, a lateral cartilaginous pillar set on to the bronchial ring by a broad base, present. Tenth primary long, eleventh vestigial.

a. Only one pair of tracheo-bronchial muscles; metasternum 4-notched, or else (in Formicariidae) tensor patagii brevis tendon normally passerine and nares holorhinal; tarsal envelope not exaspidean (endaspidean, taxaspidean or holaspidean).

b. Metasternum 4-notched; tensor patagii brevis tendon quasi-picarian (returning portion concealed by muscular fibers at origin of extensor metacarpi muscle.

c. Interorbital septum perforate; mesorhinium compressed and arched or else expanded into a flattened oval shield; intrinsic muscles present; nostrils conspicuously operculate; tarsal envelope taxaspidean or holaspidean.

Pteroptochidae.

cc. Interorbital septum wanting; intrinsic muscles wanting; mesorhinium normal; nostrils not conspicuously operculate; tarsal envelope exaspidean.

Conopophagidae.

bb. Metasternum 2-notched; tensor patagii brevis tendon normally passerine.

Formicariidae.

aa. Two pairs of tracheo-bronchial muscles; metasternum 2-notched tarsal envelope endaspidean.

b. Nares schizorhinal; interorbital septum perforate; outer toe decidedly (usually much) shorter than middle toe and not conspicuously longer than inner toe (except in Sclerurus and Pygarrhicus) and united to middle toe for not more (usually less) than whole length of basal phalanx of latter; hallux (without claw) as long as inner toe (without claw) or longer, much stouter.

Furnariidae.

bb. Nares holorhinal, interorbital septum imperforate; outer toe as long as middle toe, much longer than inner toe; united to middle toe for more than whole length of basal phalanx of the latter; hallux (without claw) shorter than inner toe (without claw), little, if any, stouter.

Dendrocolaptidae.

OSCINES.

- a. Outermost obvious primary (ninth) much more than half as long as the next, usually longer than the secondaries, frequently longest or equal to the longest; the primaries apparently only nine. ("Nine-primaried Oscines".)
- b. Tip of maxilla not abruptly uncinatate, or else the bill short and broad at base, or with maxillary tomium toothed subterminally (Tangaridae, part).
- c. Longest primaries much less than twice as long as secondaries.
- d. Width of bill at rictus much less than length of culmen.
- e. Tertials not distinctly if at all, elongated, or else (Fringillidae, part) the bill conical.
- f. Bill usually more or less stout and conical, not distinctly compressed (or else the maxilla with tip uncinatate and tomium toothed); if slender, the maxillary tomium notched subterminally, or else tip of bill acute and rictal bristles obsolete.
- g. Rictal bristles obvious, usually very distinct; maxillary tomium usually more or less distinctly notched, or else the bill stout or wedge-shaped and nostrils hidden by antrorse plumules.
- h. Commissure distinctly and more or less abruptly angulated or deflexed basally; mandibular tomium distinctly elevated, usually more or less angulated, sometimes toothed, postmedially.

Fringillidae.

hh. Commissure not distinctly angulated or deflexed basally; mandibular tomium not distinctly elevated, never angulated nor toothed, postmedially (or if elevated the maxillary tomium not abruptly deflexed basally).

Tangaridae.

gg. Rictal bristles obsolete; maxillary tomium without subterminal notch; if bill stout or wedge-shaped the nostrils not hidden by antrorse plumules.

Icteridae.

ff. Bill slender, or if relatively deep, compressed and with culmen regularly or distinctly curved; if approaching a conoidal shape the basal depth not more than half the distance from nostril to tip of maxilla and the commissure not angulated or deflexed basally.

g. Bill much longer than head, subulate, slightly decurved terminally, or else slender-conoid with tip acute; if the latter and not decurved terminally, the tail decidedly longer than distance from bend of wing to tip of secondaries.

Coerebidae.

gg. Bill always shorter than the head, subulate, slender-conoid, or rather stout, but compressed, never decurved; if acute at tip the tail not longer than distance from bend of wing to tip of secondaries; if rather stout the culmen decidedly but gradually curved.

Mniotiltidae.

ee. Tertials conspicuously elongated, reaching nearly if not quite to tips of longest primaries, the bill slender almost subulate.
Motacillidae.

dd. Width of bill at rictus equal to or greater than length of culmen.
Procinatidae.

cc. Longest primaries more than twice as long as secondaries.
Hirundinidae.

bb. Tip of maxilla abruptly uncinuate, the bill narrow and straight; maxillary tomium not toothed subterminally.
Vireonidae part.

aa. Outermost obvious primary (tenth) not more than half as long as the next, usually shorter, sometimes rudimentary ("Ten-primaried Oscines".)

b. Basal phalanx of middle toe adherent for entire length to both lateral toes, the hallux not longer than outer toe.
Vireonidae part.

bb. Basal phalanx of middle toe free from inner toe for most if not all its length, and from outer toe for (approximately) half its length, or else (Troglodytidae) hallux decidedly longer than outer toe.

c. Nostrils covered (at least partly) by tuft of antrorse plumules, or else exposed circular, without superior membrane or operculum, the tenth primary about half as long as ninth.

Corvidae.

cc. Nostrils exposed but not circular and without superior membrane or operculum, nor bill elongate conical with broad and depressed mesorhinum.

d. Hallux distinctly longer than lateral toes; basal phalanx of middle toe adherent for whole of its length to both lateral toes.

Troglodytidae.

dd. Hallux not distinctly if at all longer than lateral toes; basal phalanx of middle toe free for most if not all of its length from inner toe, and (approximately) for half its length from outer toe.

e. Acrotarsium booted, at least on outer side.

f. No trace of rictal bristles, the plumage of whole head short, dense, velvety; body covered with down, aquatic.

Cinclidae.

ff. Rictal bristles more or less obvious (usually distinct), the plumage of head normal; body without down, not aquatic.

Turdidae.

ee. Acrotarsium scutellate (on both sides).

Mimidae.

Rheidae.

1.

a. Metatarsus with transverse scutes throughout length, feathers greyish with white tips.

rothschildi

(= americana) Type locality Ynglozes, Ajo, Buenos Aires
wa. Metatarsus with transverse scutes on distal half only, feathered in front, in whole or in part; feathers brown, many with white tips

pennata

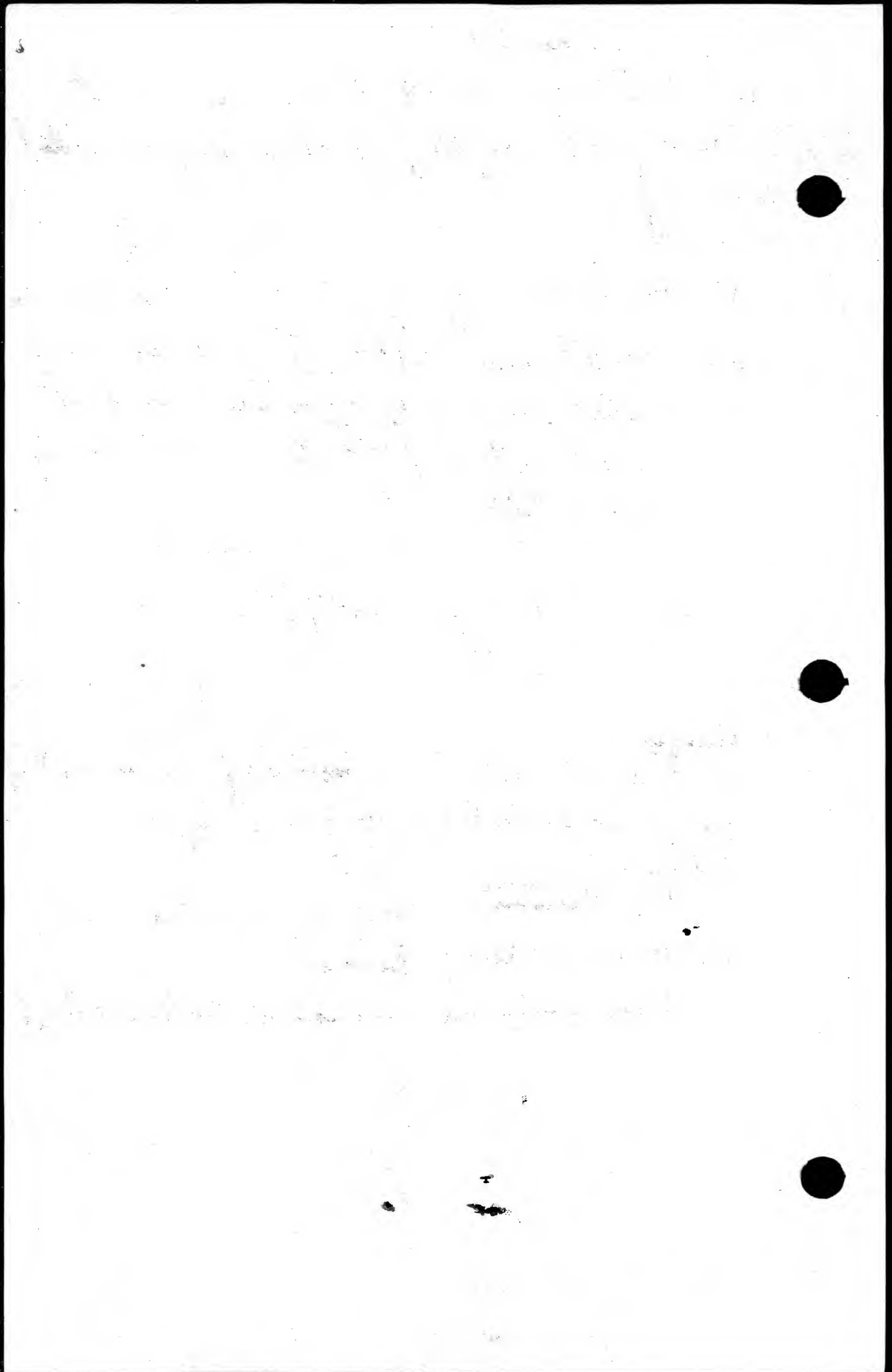
(= darwini) Type locality Patagonia.
Not in Museum.

Ranges

R. rothschildi (a subspecies of americana)
ranges in South Brazil, Uruguay, Argentina & Patagonia.

R. pennanti
R. darwini - Patagonia; Argentina; Chile, South & West Peru; Bolivia.

Rhea americana americana - North-east Brazil.



Tinamidae

(after Salvadori) ²
Cat. Birds, Vol. 27.)

a. Hind toe present

Tinaminae

aa. Hind toe absent

Tinamotinae.

Tinaminae

a Rectrices covered by upper tail-coverts but easily distinguished by their difference in structure; external nares with opening directed upward, at or above center of upper mandible, bordered below by a membrane that extends to anterior angle of opening but that is more evident behind.

Crypturus.

aa. Rectrices similar in form to tail-coverts and almost indistinguishable from them; external nares below center of upper mandible, opening laterally, without bordering membrane below.

b. Size larger, more than six inches long.

c. Primaries uniform rufous.

Rhynchotus.

cc. Primaries not uniform rufous

d. Posterior face of tarsus covered with ^{small} hexagonal scales.

d. posterior face of tarsus rough

Tinamotus

cc. posterior face of tarsus smooth

Nothoprocta.

dd. Posterior face of tarsus with two rows of scales, the outer series broader than the inner, and neither uniformly

bb. Length 6 inches hexagonal. Taeniscus (not in museum) Nothura

Crypturus (see above)

a. Upper parts not distinctly barred with blackish; size small or medium. (Wing less than 7 inches). ✓

b. Underparts including breast grayish brown

c. Size larger, wing more than 125 mm.

tataupa (Jemm.)

cc. Size smaller, wing less than 125 mm.

d. Crown and hindneck gray, darker on crown.

parvirostris Wagler.

dd. Crown and hindneck grayish black, nearly black on crown.

Kerberti Büttikofer.

bb. Underparts, including breast, bright reddish brown.

obsoletus (Jemm.)

aa. Upper parts distinctly barred with blackish.

Size slightly larger (wing 7 inches).

d. upper part of head not entirely black.

vermiculatus (Jemm.)

bb. upper part of head black.

undulatus (Jemm.).

✓ Immature specimens of tataupa, parvirostris, and Kerberti have the tertials and inner wing coverts tipped with whitish and barred with black.

C. Kerberti and C. undulatus are not represented in the Nat. Mus. C. Kerberti is probably a subspecies representing parvirostris in Argentina.

4.

Rhynchotus

a. Foreneck with prominent longitudinal brown streaks.

maculicollis

(not in Museum Coll.)

aa. Foreneck not prominently streaked.

rufescens.

(Type locality Paraguay).

There are several forms of rufescens. R. f. catungae said to have occurred in Buenos Aires is in reality from northern Brazil.

Nothoprocta.

a. Feathers of back, margined with whitish, forming distinct stripes.

b. Under wing-coverts regularly barred with whitish buff and grayish brown; breast thickly spotted with white.

cinerascens.

bb. (Type locality Tucuman) not in museum. Under wing-coverts not regularly barred; breast not thickly spotted with white.

c. Outer web of secondaries distinctly rufous; barred with brown; larger, wing 6.5 in.

perdicaria

(Type locality Chile)

cc. Outer web of secondaries plain brown barred with buff; smaller, wing 6 in.

(not in museum)

perlandi

^{5'} aa. Features of back without distinct lighter
stripes

ornata rostrata

Type locality Cumbre de Malamala,
Tucumán. (Replaces ornata in Dabbs,
p. 187.) Not in museum.

Nothura:

a. Markings of dorsal surface bolder, the feathers
heavily spotted with black and edged broadly
with buff. tarsus not less than 35 mm.

b. Paler above, black less prominent, spots on
breast less sharply defined.

(Type local. Paraguay) maculosa maculosa.

bb. Darker above, black markings heavier
more prominent, spots on breast more
sharply defined.

maculosa nigroguttata.

Type locality Central Pampas.

aa. Markings of dorsal surface finer, the
feathers vermiculated, less heavily spotted,
edged narrowly with whitish. tarsus
not more than 32 mm.

b. Vermiculation of upper parts finer,
abdomen paler, "wing shorter" (no
measurements available)

Type locality Bahia Blanca. darwinii.

bb. Vermiculation of upper parts coarser,
abdomen brown, wing 131-146 mm.

Type locality Salta. salvadoris

Probably subsp. of darwini. Replaces boraginensis of Dabbs.

Jaoniscus addenda.

6

Jaoniscus nanus

total length

About six inches. Range Paraguay and Brazil.

April 1900
The first of the season
has begun to show itself.

Tinamotinae

8.

a. With a long crest; acrotarsium with transverse scutes.

Calopezus.

aa. Head not crested; acrotarsium with hexagonal scutes (tarsus differences uncertain however)

Tinamotis.

Calopezus.

a. Underparts heavily barred save in middle of abdomen.

elegans.

aa. Underparts plain save on sides and upper breast, where bars are few; barring lighter.

b. Size larger (wing 238-251 mm.) bars heavier

formosus.

bb. Size smaller (wing ♂ 233 mm); bars narrower and less prominent.

intermedius.

Calopezus elegans (D'Orbigny & Geoffroy). Provinces of San Luis, Cordoba and Sud de Buenos Aires, Eastern Patagonia as far as Chubut and the eastern plains of San Juan and Mendoza. Type locality Patagonia.

⁹ Calopezus intermedius Lillo & Dabbene. Andean Valleys
in Western Tucumán (Colacao del Valle and Ambaicho)
and La Rioja (? Chilecito). Type locality Colacao del Valle.

Calopezus formosus Lillo. Plains of eastern
Tucumán and Northwestern Santiago del Estero
(desa dacú and Sunchu Corral. Type locality
Between Las Cajas and desa dacú, border of
Tucumán and Santiago del Estero.

These three forms are probably subspecies
of one, elegans.

Tinamotis

Tinamotis ingoufi.

Primaries nearly uniform Chestnut
(as in Rhyarhotos rufescens) Head with
white and dusky stripes. Two white
bands on either side of neck.

E. Patagonia near Santa Cruz. Type locality
Patagonia. No specimens in Museum.

Cracidae.

a. Upper mandible elevated, higher than broad.

Crax.

aa. Upper mandible depressed, broader than high.
b. Three outer primaries with inner webs deeply incised distally, tips falcate.

Pipile.

bb. First, outer primary slightly or not at all incised distally, tip broad.

c. Throat naked save for filophanes

Penelope.

cc. Throat with a median
line of feathers

Ortalis.

Pipile

a. Feathers of upper surface glossed with green, both webs of ^{outer} greater coverts white

Cumanensis.

aa. Feathers of upper surface glossed with purple, outer web of outer greater coverts white, inner web dark.

jaentinga.

Penelope

a. secondaries & tertials bordered with rufous superficialis

aa. secondaries and tertials without rufous obscura.

Columbidae (From Ridgway. 12.

a. wing relatively longer & more pointed, longest primaries exceeding secondaries by more than one third length of wing; tarsus less than one sixth as long as wing (diastotaxie).

b. Middle toe (without claw) at least $\frac{9}{10}$ the as long as tarsus, the latter with upper portion more or less feathered in front.

Columba.

bb. Middle toe (without claw) less than $\frac{5}{6}$ the as long as tarsus, the latter with upper part entirely bare.

c. Tail with post-median ~~band~~ ^{band} of black, a subauricular spot of black.

Zenaidura macroura

cc. Tail without cross-band of black, sides of head & upper neck immaculate.
(not in museum) Metropolia.

aa. Wing relatively shorter and more rounded, longest primaries exceeding ~~longest~~ ^{second} secondaries by not more (usually less) than one third of wing (eutaxie save in Leptotila & Geopelia).

c. Tail more than two-thirds (usually nearly three-fourths) as long as wing

d. Tail as long as or longer than wing

e. plumage barred with black

Scardafella.

ee plumage not barred.

f. outermost primary attenuated terminally

Oryzopsis cyanocephala Pelz.

ff. Outermost primary not attenuated
Uropygia campestris (Spix)

dd. Tail decidedly shorter than wing.

e. smaller, wing less than 102

f. None of the primaries with inner web lobed or toothed; orbital region extensively naked extending to rest of wing immaculate.

Gymnophila morenoi Sharpe.

ff. Fourth primary (from outside) with inner web toothed or lobed; orbital region slightly naked, wing spotted.

g. Secondaries entire

Columbiga pini

ee. Larger ~~gg~~ wing more than 110.

f. Tail truncate, less wholly feathered
Charavis.

ff. Tail decidedly rounded less naked.

g. outermost primary shorter than seventh, abruptly attenuated terminally

Leptotila

gg. Outer most primary longer than seventh, not attenuated

Oreophila.

a. Plumage of underparts and hindneck with dark tips on lighter ground color (Squamalid) (Cayenne). *Speciosa* Gmel.

aa. Plumage of underparts plain without squamate markings.

b. rump concolor with back

plumbea bairi Hellmayr.

Central Brazil.

b.b. rump slate gray differing from back

c. wings without prominent white markings (Paraguay). *rufina sylvestris* Vieill.

Paraguay, South Brazil

cc wings with prominent white markings

d. Prominent bare space about eye, outer greater coverts with prominent white margins.

e. pale above ~~face~~

picauro picauro Temm.

(type local. Paraguay)

ee. darker above

picauro venturana Hart.

type local. Moco, Chaco.

range West Argentina.

dd. Bare space about eye small; all of wing coverts with white spots at tips.

maculosa Temm.

type local. Paraguay.

Claravis

a. Tail with extensive white tips or light tips
~~St~~ geoffroyi Temm.
 Southeast Brazil.

aa. Tail without light tips

gutturosa Ferrari-Perez.
Metropelia

a. tail 3.75; upper tail coverts extending within an inch of tip of tail; band of wing white, upper wing coverts without golden spots.

melanoptera (Mot.)

aa. Tail 2.4 in. upper tail coverts extending within .4 in. of tip of tail; band of wing without white; median upper wing coverts with golden spot at tip.

aymara Knip & Prev.

Leptotila.

a. Breast bright vinous red reichembachii Pelz.

aa. Breast pale vinous

b. wing 6.2 in to 6.5.

Chloranchemia

bb. wing 5.5

ochroptera Pelz.

Callanchemia is said to be similar to Chloranchemia; saturata to megalaria.

Rallidae

16.

- aa Culmen ^{slightly shorter to} longer than middle toe & claw
- b Tarsus shorter than middle toe & claw
- c no frontal shield. nasal opening near base of ~~that~~ tip of bill groove ~~than~~ front.

Rallus antarcticus King.

- cc a tiny frontal shield. nasal opening near base of groove

limnospardalis

- bb Tarsus longer than middle toe and claw

Aramides.

- aa Culmen much shorter than middle toe and claw.

- b no frontal shield.

- c wing more than 4 inches.

Porzana albicollis

- cc wing less than 4 inches.

d upper surface plain

- e axillars without white

(Paraguay). Creciscus leucopyrhus (Vieill.)

- ee axillars white or spotted with white.

f sides of breast reddish brown

(Paraguay) Creciscus melanopyrhus (Vieill.)

- ff Sides of breast grey.

Neocrex erythropus (Scalater)

- dd upper surface variegated.

- e secondaries marked with white

Ortygops or Coturnicops notata (Gould)

- ee secondaries without white.

- f no white on back, throat & breast grey

Porzana salinasii

- ff Back streaked with white

undersurface partly white.

Porzana flaviventris

17.

bb. with frontal shield

c. Iris lobed

Fulica

cc. Iris not lobed

d. Iris with lateral membrane

e. Frontal shield rounded or truncate behind.

Gallinula galeata.

ee. Frontal shield pointed behind

Porphyrio melanops

dd. Iris without lateral membrane

Limnoparadis

donovis

a. plumage streaked barred or spotted with white

maculatus

aa. plumage not streaked barred or spotted with white.

b. Throat white, undertail coverts & tail black. (Paraguay) nigricans

bb. Throat not white, undertail coverts marked with brown

(Paraguay)

(underparts whitish in young) elysius

Aramides

a. underparts entirely slate grey

Saracura

ac. Throat grey, breast reddish brown.

b. wing more than 8 inches

(Paraguay)

ypecaha

bb. wing less than 7 inches

cajanea

Donornis

18.

a. Below purplish blue

Martinea

aa. Below white

parva

a. no white on Fulica ~~secondaries~~.

b. Shield ornamented with caruncles
(not in museum) cornuta

bb. shield swollen or plain but not carunculated

c. outer web of first primary white.
armillata

cc. outer web of first primary plain

rufifrons

aa outer secondaries with broad white tips
leucoptera.

Podicipedidae

Podiceps

a. crown light grayish brown, underparts white

califarens

aa. crown blackish, ~~with~~ feathers sometimes margined with brown, underparts brown, or else whitish with brown on forehead & abdomen washed with brown.

Americans.

Podilymbus podiceps is common.

Podiceps dominicus brachyrynchos may be known by its small size. wing 90-100 mm.

Aechmophorus major has the forehead checkered.
in young this is merely a wash.

June 10

From the ...

...

...

...

...

...

...

...

...

...

...

September 9

...

...

...

...

...

...

...

...

...

...

a. Bill swollen distally or subcuneate in outline; nasal fossae rounded and relatively broad at anterior end; hallux absent save in Squatarola.

b. Bill swollen distally.

c. Hallux present, axillars black

Squatarola

cc. Hallux absent axillars gray or white

d. size large, wing more than 159 mm.

Pluvialis dominicus

dd. size small, wing less than 127 mm.

e. Culmen more than two-thirds as long as tarsus; bill stout.

Pagolla wilsonia

ee. culmen less than two-thirds as long as tarsus; bill slender.

f. a web between basal phalanges of inner & middle toes, a complete dark collar on front.

Charadrius semipalmatus

ff. No distinct web between basal phalanges of inner and middle toes; no complete collar on front.

Charadrius nivosus

bb. Bill subcuneate in outline.

Arenaria i. morinella

aa. Bill not swollen distally; nasal fossae narrow and pointed at anterior end; hallux present save in Calidris.

b. Iore with conspicuous lateral membrane; plumage dense, gull-like; tarsus much compressed.

c. Bill broad, expanded subterminally, nostrils separated from loreal feathering by space about equal in length to basal depth of maxilla

cc. Bill slender, not expanded subterminally; nostrils close to loreal feathering.

Phealaropus fulicarius

d. Bill attenuated terminally, tarsus shorter than exposed culmen; tail graduated.
lobipes lobatus

dd. Bill subulati; tarsus longer than exposed culmen; tail doubly emarginate.

bb. Tars without conspicuous lateral membrane; tarsus not conspicuously compressed; plumage ordinary.
Steganopus tricolor

c. Nasal fossae relatively broad posteriorly, contracting anteriorly into a narrow groove that extends nearly to tip of maxilla -

d. Anterior toes more or less webbed at base.

e. Exposed culmen more than one third as long as wing.

f. Tip of bill little expanded, not punctulate.

ff. Tip of bill expanded, distal third punctulate.
limosa haemastica

ee. Exposed culmen less than one third as long as wing.
Macrorhamphus scolopaceus

f. Tarsus more than one third as long as wing.
Micropalama himantopus

ff. Tarsus not more than one fourth as long as wing.
Eremetis pusillus

dd. Anterior toes not webbed

e. Hallux absent
Calidris alba

ee. Hallux present.

22.
f. inner webs of remiges marbled or freckled.
Tryngites subruficollis.

ff. inner webs of remiges not marbled or freckled.

g. Middle pair of rectrices not longer than others

Canutus canutus.

gg. Middle pair of rectrices distinctly longer than others

Pisobry.

cc. Nasal fossae relatively narrow posteriorly, continued anteriorly as a broad groove for not more than two thirds length of maxilla (save in Actitis which has broad white band on remiges).

d. Bill distinctly curved distally

Numenius borealis.

dd. Bill not curved distally.

e. Tail decidedly longer than tarsus.

Bartramia longicauda.

ee. Tail shorter than tarsus.

f. inner webs of remiges with band of white.

Actitis macularia.

ff. inner webs of remiges without white band.

g. Rump white. ~~tarsus~~

h. larger, wing 180-190

Sotamus melanoleucus

hh. smaller wing 149-163

Sotamus flavipes.

gg. Rump not white

Helobryas solitarius.

Pisobia.

a. larger, wing 114-146.

b. Median upper tail coverts pointed at tip;
tail slightly rounded; rump & median upper
coverts sooty blackish.

maculata.

b. Median upper tail coverts not pointed at tip;
the tail double emarginate; rump and median
upper tail coverts not sooty blackish.

c. Median upper tail coverts dark greyish
brown like rump.

bairdi.

cc. Median and lateral upper tail
coverts white

juscicollis.

aa. smaller, wing 82-104.

minutella.

South American Charadriiformes.

24.

a. Bill fowl-like, a distinct Crop. (*Thinocorythidae*)

b. size large, wing more than 180 mm.

(type loc. Chile)

Attagis gayi Giff & Hux

bb. size small, wing less than 160 mm. (*Thinocorys*)

c. size larger, wing 140 mm, no black stripe on either side of throat.

(type loc. Chile)

Thinocorys or biguianus

cc. size smaller wing 120 or less, a black stripe on either side of throat, the two confluent on breast.

(type loc. Chile)

Thinocorys ruficivorus

aa. Bill not fowl-like, no crop.

b. Bill decurved at tip.

(type loc. Paraguay)

Rostratula semicollaris (Vint.)

bb. Bill straight.

c. Bill ~~two times~~ longer than head or more

d. wing more than 150 mm.

(type loc. Brazil)

Gallinago gigantea.

dd. wing less than 150 mm.

e. Bill more than 75 mm. (usually 80 mm)

G. nobilis

ee. Bill less than 75 mm. (usually less than 70)

f. Outer tail-feather 6-7 mm broad.

(Known from S.E. Brazil) G. delicata

ff. Outer tail-feather 3-4 mm broad.

g. Darker, blacker in color above, light margins of feathers less extensive.

G. frenata (= brasil)

gg. Paler, lighter in color above, light margins to feathers much more extensive G. paraguayae.

cc. Bill as long as or shorter than head.

d. Bill straight, not swollen distally.

Phegornis mitchelli

[Chile & Peru. Two there. adult, nape brown, a white line across crown and back over eye on either side. rest of head sooty black, more or less barred below, yeg brown, barred above.

Wing 112, tail 50.]

dd. Bill swollen distally. (ploverlike).

e. Head conspicuously crested (Belonopterus).

f. Sides of head brownish gray.

Wing 220-232.

(~~found in S. Brazil~~) B. cayennensis.

g. brown above

(~~found in Brazil~~) B. c. cayennensis

gg. grayer above.

(arg. wing, Parag.) B. c. griseocens

ff. Sides of head ashy-gray

Wing 243-255

B. chilensis.

ee. Head not conspicuously crested.

f. hallux present.

Zonotrichia modestus.

ff. hallux absent.

g. wing more than 190 mm

(a bushy decumbent crest).

Ptiloscelus replenens.

gg. wing less than 190 mm

h. a small blunt metacarpal spur.

Hoploxypterus cayana.

hh. no metacarpal spur.

26.
i. Exposed culmen more than twice as long
as middle toe without claw. upperparts
striped conspicuously with buff.

Oreophilus ruficollis.
ii. Exposed culmen less than twice as
long as middle toe without claw.
upperparts not striped.

j. Two black bands on chest
Charadrius falklandicus.

jj. One black band on chest.

Charadrius collaris
[differs from simipalmatus and
c. nivosus in not having a
white nuchal collar.]

Recurvirostra andina a large avocet
without black in the wings.

Himantopus melanurus. Crown grayish
white. A white collar on upper back.

Channa ^{screamer} cristata - Two prominent spurs
on either wing. head gray, a bare ring
around neck. (Chavaria has white chukos.)

Cariacidae

a. general plumage blackish, a long crest, orange
bill, tail tipped with white. Cariama cristata.

aa general plumage gray, a short crest, black
bill, tail tipped with grayish. Chunga burmeisteri

Ardeidae.

Ardea cocoï - a great blue heron with large bill.

Butorides strata - a little green heron.

Nycticorax

a: white on forehead, paler below (like naevius) tayagu-guisa.

aa: no white on forehead, very dark below, young darker below than in tayagu-guisa cyanocephalus.

Syrigma sibilatrix. Bill shorter than tarsus, throat feathered. a distinct subterminal notch in bill.

Igrioma, bill as long as or longer than tarsus, throat bare at sides, feathered in center. no subterminal notch in bill.

a: Head & neck chestnut, crown black (adults) or tawny buff barred with black (young) Chuk's bare to below eye. I. marmoratum.

aa: Head & neck black, with tawny-buff bars or spots (adults) crown of head and neck deep rufous barred with black (young) I. fasciatum

(Igrioma bolivianum (Lönnerberg) from Iatarenda, Bolivian Chaco, is probably a synonym of marmoratum)

Ardeobrychus

a: back & scapulars uniform, d. erythronelas

aa: back & scapulars streaked, d. involucris

Botaurus pinnatus a bittern with crown of head barred with sandy buff.

Ciconiidae

28.

a. Bill including lower mandible distinctly decurved.

Mycteria americana

aa. Bill straight, lower mandible not decurved.

b. Undertail coverts stiffened and elongated, head & neck feathered, smaller culmen 200-210 mm

Euxenura maguari

bb. Undertail coverts not specialized, head and neck largely bare, culmen 300 mm or more

Tabira mycteria

Alcedinidae

a. Anterior face of tarsus with reticulate scales.

b. Forehead feathered.

c. a large ~~space~~ space around eye and throat bare, no nuchal crest.

Theristicus

d. Throat & breast orange rufous, abdomen black

T. melanops

cd. Throat whitish; forehead rufous; breast & abdomen black.

T. candidus

cc. Space behind eye and throat feathered, a nuchal crest.

(Type loc. Paraguay)

Molothrus caeruleus

aa. ~~bb~~ Anterior face of tarsus with transverse scales (scutellate)

Plegadis

Sterninae

- a. Frontal feathering advancing farthest anteriorly on or near base of culmen (if forming an obvious lateral angle this very short and obtuse, and placed much above level of nostril). *Phaethusa chloripoda*
(type loc. Paraguay)

aa. Frontal feathering advancing farthest anteriorly on sides of maxilla when forming a distinct (though sometimes obtuse) angle immediately behind nostril.

b. Feathers of occiput elongated forming a distinct erectile crest; bill larger and longer (Thalassurus)

c. Bill red or yellow (sometimes marked with blackish)

d. larger wing more than 358 mm. *J. maxima*.

dd. smaller wing much less than 350 mm. (bill sometimes partly colored) *J.*

cc. Bill black, usually tipped with yellow. *J. eurynatha*.

bb. Feathers of crest not elongated; bill relatively smaller. *J. sandvicensis aculeata*.

c. Bill shorter and stouter; its greatest depth equal nearly to one-third of exposed culmen; tail forked for only one third of length (bill black) *Gelochelidon nilotica*.

cc. Bill relatively longer and much more slender; greatest depth less than one fourth of exposed culmen; tail forked for one half of length or more.

d. larger, wing 230 or more, tail more than $\frac{1}{2}$ wing. (Sterna)

e. larger, wing 290 or more(?) primaries not tipped with black; bill red or yellowish; crown and nape in adult black. *Sterna hirundinacea*

ee. smaller, wing 248-276, primaries tipped with blackish; bill black or dusky; crown and nape in adult white; a dark line through eye.

dd. smaller, wing less than 180 mm. tail not more than half as long as wing. *Sterna trudeana*.

(type loc. Paraguay) *Sterna superciliosa*

a. Outer webs of primaries without white (same at extreme tip) size averaging larger.

Larus dominicanus

a.a. Outer webs of some of primaries marked extensively with white, size averaging smaller,

b. Primary coverts prominently white.

~~large~~ c. Size larger, wing 350 mm, (head black when breeding, white streaked with dusky in winter) and Larus severinus gull.

c.c. Size smaller, wing less than 325 mm (hood in adult brownish black)

Larus maculipennis.

b.b. Primary coverts gray,

Larus cirrhophilus

(This gull said to be common in Africa)

Catharacta chilensis. Claws sharp and hooked; size large; bill with a cere.

Anatidae

a. Hind toe with small narrow lobe.

b. Bill short, gooselike.

c. Shoulder patch white (Chloephaga)

d. Under tail coverts rufous. C. poliocephala.

dd. Under tail coverts white or blackish.

e. Underparts head and back white

C. melanoptera

ee. Underparts heavily barred with black.

C. inornata.

cc. No white shoulder patch Alopochen jubata.

bb. Bill broad, more or less flattened, ducklike.

c. Lores naked.

Cairina moschata

cc. Lores feathered

d. Back, wings, tail and rump entirely black with a greenish sheen (♂ with an elongate caruncle on bill)

Sarcidornis sylvicola

dd. Upperparts not uniform in color.

e. Lower portion of front of tarsus with small, reticulate scales, bony eye-ring complete.

(Dendrocygna)

f. Underparts plain brown, no white on head.

(type loc. Argentina)

D. fulva.

ff. ~~Underparts~~ Breast black, head and throat marked with white.

D. viduata.

ee. Lower portion of front of tarsus with broader transverse scales. bony eye-ring incomplete.

f. a slender filamentous crest. Rectrices 14.

Lophonetta cristata

ff. Head not crested, Rectrices 16 or more

g. Shoulder blue or bluish gray (Querquedula)

h. Upper wing coverts bluish gray or lead-color

(type loc. Paraguay)

D. versicolor

hh. upper wing coverts pale blue.

(type loc. Rio de la Plata & Buenos Ayres) Q. cyanoptera.

gg. Shoulder not blue or bluish gray.

h. Tail with central rectrices with elongate narrow points, feathers prominently graduated.

i. Speculum bright green with a black border, hind bill marked prominently at base with orange.

Pocillonetta bahamensis.

ii. Speculum black or blackish, sometimes with a gloss; no orange on bill.

(type loc. Buenos Ayres) Wapla spinicauda.

hh. Tail with central rectrices only moderately pointed; not strongly graduated.

i. No speculum or prominent color patch on wing other than two narrow white bars on tips of secondaries and greater coverts.

Heteronetta atricapilla.

ii. A more or less prominent speculum or color patch on wing.

i. Speculum showing strong reflection of coppery red.

Anas specularis

(not in museum coll.)

ii. Speculum not coppery red.

K. Upper tail coverts white, larger, wing more than 225 Mareca sibilatrix.

KK. Upper tail coverts not white, smaller, wing less than 210 (Nettion)

L. Shoulder dark gray.

(type loc. N. flavirostris
Buenos Ayres)

m. ~~th~~ Feathers of abdomen each with small black subterminal spot

(type loc. Buenos Ayres)

N. flavirostris

~~mm.~~ (Scapulars with large black spots and narrow rufescent edge. smaller wing 8:00 - 8:25 mm)

mm. Feathers of abdomen unspotted, scapulars with small black spots, and broad rufescent edges. larger, wing 8.70 in.

N. Oxypternum.

ll. Shoulder black.

m. Axillars white

N. brasiliensis

mm. axillars black

N. torquatum

(type loc. Paraguay).

ag. Hind toe broadly lobed.

b. Bill strongly compressed, a prominent wingfeather (Merganetta)

c. Chicks partly black

M. armata.

cc. chick white

M. berlepschi

(Type loc. Tucuman)

bb. Bill depressed, not wingspread.

c. Rectrices normal

d. Axillars white, under tail coverts entirely white ♂ with bill swollen at base.

Myiophobus purosaca.

dd. Axillars brown, under tail coverts dark at base, tipped obscurely with white

Mareca erythrophthalma

(specimens Lagoa de Braco Brazil).

cc. Rectrices narrow & very stiff

d. nail of bill 2-2 1/2 mm wide

Orismateryx vittata

dd. Nail of bill 6-7 mm wide

Homonyx dominicus.

Cygnus melanocoryphus - adult white head & neck black, a prominent frontal knob; young head & neck brown, no frontal knob.

Coacoroba coscoroba - An enormous white duck with black-tipped primaries. wing 425-465 mm.

Sacybes gray with white abdomen & white patch in wing. Bill heavy gooselike. Length 30 in. wing 11 inches. Central tail feathers narrow & curled up. a lobed hind toe.

Merganser octasulatus - lower parts barred with white & bluish. Not in museum.

Asronidae.

a. External ear opening extremely large: vertical axis equal to at least one half greatest height of skull, crossed by median ligament or bridge, anterior margin produced in a dermal flap.

b. Head without distinct ear tufts.

c. Size small, wing 133-188 (toes naked)

Gisella iheringi.

cc. Size large, wing 300-460 *Strix rufipes*.

bb. Head with more or less distinct ear tufts.

c. Tail not more than half as long as wing; latter more than seven times as long as tarsus. (*Asio*)

d. Ear tufts very conspicuous, upper parts finely mottled or variegated (toes naked)

dd. Ear tufts rudimentary, toes feathered. *Asio stygius*

cc. Tail more than half as long as wing; ~~less~~ *Asio flammeus*.
than six times as long as tarsus. (ear tufts large)

(= genus *Rhinopteryx*) *Asio clamator* (incl. *niclas*)

a a. External ear opening relatively small: vertical axis much less than half of greatest height of skull, margin not developed as a dermal flap.

b. Nostril a large oval or rounded opening at anterior end of cere, latter not inflated save laterally.

c. With ear tufts, cere inflated laterally, wing not more than 200 mm. (toes naked)

(*waterai* prob. subsp.)

Otus choliba.

cc. Wing 230 or more, no ear tufts, cere not inflated laterally

d. Toes feathered save on terminal phalanges

dd. Toes completely naked (*Circus*) *Pulsatrix sharpei*

e. Abdomen barred c. *Nyctophila*.

ee. " streaked " c. *Strix*.

bb Nostril a small circular opening near middle of inflated cere. *Glaucopteryx*.

a. Tail distinctly graduated with rectrices narrowing or tapering terminally or else (Psittacula) the middle rectrices distinctly acuminate, the others subacuminate.

b. Tail more than one half wing, graduated or else middle rectrices longer than rest, furcally present length more than 150 mm.

c. More than orbital region and chin naked.

d. Tip of mandible broad equal to more than one half gonys. loreal region feathered, unicolorous.

Arodorhynchus glaucus

dd. Tip of mandible narrower, its width not more than one third gonys; loreal region and suborbital region practically naked. (Ara)

e. General color not green.

f. Underparts of body orange or orange-yellow
g. Ara caninde

ff. Underparts of body red. Ara chloroptera

ee. General color green.

f. no yellow at hind neck.

A. maracana

ff. a yellow collar at hind neck

A. auricollis.

cc. ~~More~~ More than orbital region & chin naked.

d. Cere densely feathered to anterior margin.

e. Tail as long as wing, tenth (outermost) primary longer than seventh, rump yellow (Cyanolycaeus)

f. Darker below, less yellow on underparts.

(type loc. Colacao del Valle, Tucuman) C. ardens
Tucuman, Catamarca, Salta).

ff. paler below, more yellow. C. patagonus.

ee. Tail shorter than wing, tenth outermost primary longer than seventh, rump green.

Microsittace ferruginea

dd Cere incompletely feathered.

e. Seventh primary attenuated terminally.

f. Tip of maxilla acute attenuate and ridged
cere naked behind nostrils, red on inner webs of rectrices
(type loc. Paraguay) Ictocercus acuticaudatus

ff. Tip maxilla not acute, attenuate or ridged,
cere feathered behind nostrils, no red in tail.

g. Tail not longer than wing, pileum not black.
(Aratinga)

h. smaller wing 155 or less
a. aureus

hh larger wing more than 170.

i underwing coverts with more or less
red, adult with head green.

("White-eyed Parrot") a. leucophthalmus

ii underwing coverts green, adult
with fore part of crown red.

a. mitratus

gg Tail longer than wing, pileum black.

Nandayus nenday

ee. Seventh primary not attenuate terminally.

f. Culmen flattened basally, tenth primary
shorter than seventh, tail reddish. (Pyrrhura)

g. head green (type loc. Paraguay) P. vittata chrysipus

gg. head dusky P. molinae

ff. Culmen not flattened basally, tenth primary much
longer than seventh, tail green.

g. maxilla broad, swollen, width at

base = two-thirds of culmen, oil gland present

h. inner webs of 8th & 9th primaries broadened
larger, wing more than 140 mm

Myopsittia monachus

hh. inner webs of primaries normal, smaller
wing, 110 or less. (Bolborhynchus)

i crown brown. B. bayana

ii crown green
h middle of underparts faint gray

i. Tail longer than wing. feathers of cheeks long covering sides of mandible.

Amoropsittaca cymara

ii. Tail shorter than wing. feathers of cheeks normal. (Ptilopsittacus)

ff. middle of underparts bluish gray or glaucous
P. rubrisostrius.

ff. underparts yellowish green
P. orbigny

gg. maxilla, narrow compressed width at base one half or less length of culmen.

oil gland absent.

(type loc. Paraguay)

Barotegus chiriviri

bb. Length less than 140 mm (rump blue)
Psittacula virida

aa. Tail not distinctly graduated, rectrices not distinctly acuminate, or else wing more than 130 mm and tip of outermost primary not attenuated.

b. Smaller wing less than 150.

Phonopsitta pileata

bb. larger wing more than 150.

c. under tail coverts red. (Pionus)

S. E. Brazil + Paraguay = *maximiliani*

Bolivia + northern Argentina = *bridgesi*

Jucuman

= *lacurus*

Probably all subsp. of one form.

cc. under tail coverts without red (Amazona)

d wing with red or orange speculum

l. Feathers of breast and abdomen
with bases tinged with dull red.

A. Vinacea

ee. Undersurface green.

A. aestiva.

subsp. Xanthopteryx ~~sacred~~ to inhabit
Western Argentina.

dd. wing without red or orange speculum

e. Band of wing, lores, and feathers
around eye red.

A. pretrei.

ee. Band of wing, lores & feathers
behind eye green.

(Zpp loc. Budaman)

A. tucumana.

Alcedinidae

a. Upper parts bluish gray, wing more
than 150 mm.

Streptoceryx torquata

subsp. stellata ♂ said to have downy tail coverts
extensively marked with gray.

aa. Upper parts bronze green

B. larger wing more than 120, sides
striped

Chloroceryx amazona

bb smaller wing less than 100 mm
sides spotted

Chloroceryx amazona

Caprimulgidae.

40.

a. Hallux as long as inner toe; with 3 phalanges;
outer toe with 5 phalanges, oil gland absent.

Nyctivus griseus.

aa. Hallux half as long as inner toe; with 2
phalanges; outer toes with 4 phalanges;
oil gland present.

b. Pical bristles large, twice or more as long
as culmen.

c. wing abnormal, 4 to 6 primaries equal
and longest (not immes.) Ectopreptus anomalus

cc. wing normal, primaries graduated.

d. Tail with some of rectrices greatly
elongated. Hydropsalis furcifer

dd. Tail without elongated rectrices.

e. Tail truncate or emarginate.

f. Primaries white at base in male. (Stenopsis)

S. candicans

ff. Primaries black or brown at base.

S. longirostris.

ee. Tail more or less rounded.

f. size small, wing less than 150 mm.

Setopagis parvulus

ff. size large, wing more than 160 mm.

Antrostomus rufus

bb. Pical bristles minute, not longer than culmen.

c. Tail emarginate

Chordeiles virg.

cc. Tail truncate

Podager nana

Macropodidae

a Tarsi feathered *Microopus dimidiatus*
aa Tarsi naked (typ. loc. angosa, Perchila)

b Wing less than 125 mm.

Chaetura fumosa

bb Wing more than 140 mm.

c Wing more than 190 mm.

Streptoprocne zonaris

cc wing less than 180 mm

(Cypseloides)

d Wing less than 160 mm.

C. fuscigatus)

dd Wing more than 160 mm

C. senex ✕

Museum collection poor in Swifts!

Trogonidae

a abdomen orange.

Trogon aurantius.

aa abdomen red.

b outer tail feather more or less barred
 with black & white

T. variegatus

bb outer tail feather not barred

T. surincura

Cuculidae.

42

a. Rectrices 10. (Cuculinae)

b. upper tail coverts greatly elongated extending nearly to tip of rectrices.

c. larger, wing 155 mm or more
(Dusky above) Dromococcyx phasianellus

cc. smaller, wing less than 140 mm.
(brown above) Lapsera naevia

bb. upper tail coverts falling short of middle of tail.

c. ninth primary equal to or longer than fourth
cc. ninth primary equal to or longer than fourth.

d. Bill partly yellow, inner webs of primaries infus

e. larger wing 140 mm. inner webs of
primaries infus Coccyzus a. americanus

ff. smaller wing 135 mm inner webs of primaries
dull buffy C. a. julieni.

dd. Bill black.

e. wing 100 mm or more.

f. Tail nearly square, white tip on outer rectrix
2-3 mm wide; auricular region brown.

Coccyzus cinereus

ff. Tail much graduated; white tip on outer
rectrix 15-18 mm wide; auriculars black

Coccyzus melanocoryphus.

ee. wing 95 mm or less.

(throat & upper breast infus in adult.)

Coccyzus punilis

cc. Ninth primary shorter than first, tail more
than 1 1/2 times wing.

Piaya cayana.

aa. Rectrices 8 (Crotaphagidae)

b. culmen rounded, nostril a slit, striated above

bb. culmen arched, nostril oval, color black Quisa quisa

c. wing 182-316 culmen arched basally Crotaphaga major
cc. wing 128-161, culmen arched throughout C. am

Rhamphastidaea. Nostril opening posteriorly behind margin of maxilla.b. Size large wing more than 230 - breast black
Rhamphastos tocobb. size smaller wing less than 220 breast redRhamphastos decoloratusca. Nostril opening laterally or vertically.b. breast black, tawny or gray - auricular elongatedSelenidera maculirostrisbb. breast neither black, tawny or gray,c. throat not black or chestnutAndigena vaillonicc. throat black or chestnut.Pteroglossus co. australis

- a. Planta tarsi taxaspidian, rectrices rigid.
 b. Outer hind toe not longer than outer front toe.
 c. Maxilla without distinct lateral ridge or groove; tip of bill pointed (not chisel-shaped) tarsus nearly as long as longest toe without claw.
 d. Bill decidedly longer than head, tail less than two-thirds wing; ground color of ~~upper~~ underparts and rump pure white.

dd. Bill little if any longer than head; tail not less than two-thirds wing; ground color of underparts ~~and rump~~ more or less buffy. Pituipicus pitius.

e. rump plain white throat plain in color underparts barred in adult (Sorophex)

f. with yellow on face or neck, crown black.

g. Throat black.

Sorophex campestris

gg. Throat white.

Sorophex campestricola.

h. No yellow on face or neck; crown slaty gray.

Sorophex ruficollis.

ll. Rump barred with black, throat streaked, breast & abdomen spotted (Chrysophilus)

(Three "species", probably all forms of one).

(C. nigroviridis giant type loc. Rio Pilcomayo)

cc. Maxilla with a more or less distinct supranasal ridge or prenasal groove, tip of bill chisel-shaped; tarsus decidedly shorter than longest toe with claw.

q. Head & underparts white. (back black)

Leuconerpes candidus.

dd. Head & underparts not white.

e. Back not black.

f. Head Crested

(type loc. Rio Pilcomayo) Celexo Kerri

ff. Head not crested (Chloromerus)

g. Inner webs of primaries more or less rufous.

h. Primaries without bars beneath.

(type loc. Paraguay) C. chrysoclorus.

hh. Primaries barred beneath.

(type loc. Paraguay) C. aurulentus.

gg. Inner webs of primaries more or less yellow.

(type loc. Tucuman) C. rubiginosus tucumana.

ee. Back black in part at least.

f. Smaller wing less than 170. (abdomen red)

Dipsurus flavifrons.

ff. Larger, wing 180-250 mm.

g. Underparts mainly black.

(type loc. Tucuman) Myiophobus schulzi
(not in mus.)

gg. Underparts white barred with black.

h. a prominent white line on scapulars.

Ceophloeus lineatus

hh. no white on scapulars.

i. Back rump & upper tail coverts black.

ii. Back black, rump & upper tail coverts buff.

Ceophloeus galeatus.

bb. Outer hind toe longer than outer front toe.

c. Four middle rectrices much narrower than others, shafts deeply grooved on inner arch.

dd. Inner web of inner secondaries not white.

e. Primaries not barred, rump black.

Scapanus leucopogon

ee. Primaries barred, rump buff.

Phloeocastus robustus

dd. Inner webs of inner secondaries white.

Alpourentos magellanicus

cc. Middle rectrices normal.

d. Back plain olive, orange rufous or red, with or without markings; ground color of underparts dusky or brown. (Veniliornis)

e. upper wing coverts not spotted, underparts^{46.}
without distinct markings

ee. upper wing coverts spotted, underparts
distinctly barred or spotted. *V. fumigatus*

f. Underparts narrowly barred with dull white.

g. Spotted above.

(type loc. Tucuman)

V. frontalis

gg. Plain above.

ff. Underparts spotted or broadly barred with
dull yellowish white. *V. olivinus*

dd. Back spotted, barred or streaked with black
& white; ground color of underparts dull white. *V. spilogaster*

e. Back with main markings longitudinal
Trichopicus dactylopterus

ee. Back heavily cross barred with black & white
f. white bars of back equals or broader than black
bars, four white diagonal bars on middle
rectrix beyond tip of longest upper tail coverts

Dactylopterus mixtus

ff. White bars of back narrower than black bars;
than white transverse bars on middle rectrix
beyond tip of longest upper tail coverts.

(type loc. Paraguay)

Dactylopterus lignarius

aa. Plumbeous tarsi holospecific, rectrices soft.

b. Sides of face and neck rufous.

Picumnus temminckii

bb. Sides of face & neck without rufous.

c. with brown auricular spot, back plain.

Picumnus cirrhalis

cc. without brown auricular spot, back spotted or barred
d. Back spotted with white. *P. orbignyana*

dd. Back barred with dusky white *P. pilcomayensis*
(type loc. Rio Pilcomayo)

GalbulaeOil gland none, 2 carotids.a. Planta tarsi smooth, aftershaft present, lateral rectrices shortened or absent (Galbulidae)Galbula rufa, viridisaa. Planta tarsi scutellate, aftershaft absent, lateral rectrices well developed (Bucconidae)b. Bill strong, heavily uncinat, gonys ascending terminallyc. Bill broad, width at nostrils about equal to depth at same point, upper part mainly blackishNortharchus swainsonicc. Bill compressed width at nostrils less than depth at same point, not blackish above (same on head).d. Underparts white or buffy, not heavily spotted, nuchal collar white, head darker than back, not heavily spotted with buff.(upper loc. Paraguay) Ecehormis chaurumdd. Breast rufous, abdomen white, latter heavily spotted with black, nuchal collar cinnamonous, underparts prominently spotted with buff.Nystalus maculatusbb. Bill weaker, not uncinat, gonys stratipetris more or less decurved terminally.Normula rubiculaPhytornidae (margin of mandible serrate)a. Tail with a red broad bandPhytotoma raraaa. Tail black with white tip.Phytotoma rubila

(angustirostris prob.)

a subspecies

Arundinidae

48.

a Nostrils opening superiorly, broad, roundish, without distinct if any operculum.

b Larger, wing more than 123 mm.

c Throat and abdomen white, a gray band across breast (colored like Riparia) Phaeoprognis tapera

cc Throat not white (Progne)

d Underparts partly white.

(type loc. Paraguay)

Progne chalybea domestica

dd Underparts entirely sooty brown, sometimes with whitish margins on feathers.

Progne furcata.

bb Smaller, wing less than 118 mm.

c Plain ~~above~~ above, edge of wing roughened.

Elgidopteryx ruficollis

cc not plain in color above, edge of wing normal.

d w white frontal spot, back streaked, rump brown

(type loc. Paraguay)

Petrochelidon pyrrhonota

(= P. lunifrons?)

dd No white frontal spot, back not streaked,

rump not bright brown.

e Tail forked for $\frac{1}{4}$ length, glossy blue black above, (Pygochelidon)

f Undertail coverts entirely black.

(Type loc. Paraguay) Pygochelidon cyanoleuca

ff Undertail coverts white.

(Type loc. Patagonia) Pygochelidon patagonica

ee Tail only slightly emarginate, brownish above with a rufous collar on hindmost.

Alopochelidon fuscatus

49. aa. Nasal opening with distinct inner operculum.
b. Rectrices with white spot on inner web.

Hirundo erythrogastra

bb Rectrices without white spot on inner web, tail not deeply forked. (*Chlidiprocne*)

c. Greater wing coverts edged with white, upper tail coverts partly white.

Chlidiprocne albiventris

cc Greater wing coverts and upper tail coverts without white.

d. Under wing coverts and axillars white.

Chlidiprocne leucorrhoa

dd. Under wing coverts and axillars grayish brown.

Chlidiprocne meyeri.

Vireonidae

a. Tenth primary rudimentary and concealed.

Vireosylva chinii

aa. Tenth primary well developed.

b. Bill slender, smaller, wing less than 65 mm.

Pachysylvia psittacus

bb. Bill strong, heavy, compressed, larger wing more than 70 mm. (*Cyclarhis*)

c. Bill flesh color, superciliary not extending back of eye.

Cyclarhis orocrocephala.

cc. Base of mandible black, a prominent chestnut superciliary.

(Type loc. Paraguay)

Cyclarhis viridis.

Troglodytidae

50.

(Ten-primaries) scissures with hallux longer than lateral toes, the basal phalanx of middle toe adherent to both outer and inner toes, claw of hallux shorter than its digit

a. wing less than 60 mm.

b. plumage streaked above.

c. No distinct superciliary streak, rump plain, unstreaked.

(type loc. Paraguay) Cestothorus polyglottus.

cc. a distinct superciliary streak, rump conspicuously streaked (type loc. Buenos Ayres) Cestothorus platensis.

bb. Plumage nearly plain brown above.

c. a conspicuous light superciliary streak.

(Type loc. Tucuman) Troglodytes curicularis

cc. no conspicuous superciliary streak.

Troglodytes macurus

(Troglodytes m. guarix Paraguay, Argentina.

" " hornensis E. Argent, Patagonia, Chile.

a wing more than 80 mm (below grayish white, above pale brown with darker centers to feathers.

Heledytes unicolor.

Cinclidae

Cinclus schulzi, Tucuman, body, including

top of head gray, upper breast & throat

reddish brown. Not in Museum. Type loc. "Bergbächen des Cerro Varso in Hochgebirge von Tucuman, in der obersten 'Eisenregion'."

Turdidae (Key not overly good!)

a. Entire plumage dusky gray, (female more
olive, bill yellow, 30 mm long)

Scolecophagus fuscator

aa. Plumage not uniform bill less than 30 mm.

b. Breast + abdomen rusty brown.

c. upper parts uniform olive brown

Planesticus rufiventris

cc. Crown blackish, sharply differentiated from back.

Planesticus magellanicus

bb. Breast and abdomen not rusty brown.

c. upper parts olive brown.

d. A conspicuous white patch on upper breast.

e. underwing coverts & axillars buffy brown.

Planesticus albicollis

ee. underwing coverts & axillars bright rufous brown

Planesticus albiventer
~~amaurochalinus~~

dd. upper breast grayish brown

Planesticus amaurochalinus

cc. Back rump & upper parts gray.

d. Chin and throat white streaked with
black.

Planesticus nigricaps (♂)

dd. Chin black

Platycichla flavipes (♂)

(females of last two have gray replaced
by olive brown; not seen)

Mimidae

52.

a. Feathers of foreneck stiff & bristly. (Crown black, back brown, buffy brown beneath. tail much graduated.) Donacobius atricapillus

aa. Feathers of foreneck normal. (Mimus)

b. Outer tail feather entirely white

c. Primary coverts entirely white, secondaries white at tip. Mimus dorsalis

cc. Primary coverts partly black, secondaries broadly white in inner webs.

(type loc. Paraguay)

Mimus triurus

bb. Outer tail feather black basally.

c. Flanks distinctly streaked or spotted with dusky brown.

d. a distinct moustache of blackish spots.

(Chile)

Mimus thenca.

dd. no moustache

(type loc.)

Mimus saturninus

modulator

cc. flanks not distinctly streaked

Mimus patagonicus.

Sylviidae

a. Lores black, breast gray

Poliophtila dumicola

aa. Lores white, underparts creamy.

Poliophtila lutea.

Motacillidae

a. Outer tail feather brownish buff, next one marked and tipped with pale.

(Type loc. Tucuman) Anthus hellmayri

aa. Outer tail feather partly white

b. wing 61-66 mm, less than 68 mm

Anthus lutescens

bb. wing more than 72 mm

c. Exposed culmen more than 11 mm. interscapular region with prominent buff margins on feathers that form longitudinal streaks. hind claw more than 11 mm.

(Type loc. Paraguay) Anthus correndera

cc. Exposed culmen less than 11 mm lighter margins on feathers of dorsal surface pale brown not forming prominent streaks in interscapular region. hind claw 10 mm or less.

(Type loc. Patagonia) Anthus furcatus

Corvidae

a. An erect crest of stiff feathers over entire crown, a brilliant blue spot above eye.

(Type loc. Paraguay) Cyanocorax chrysops

Subsp. tucumanus (darker) from Tucuman.

aa. Erect stiffened crest on front of crown only. no blue spot above eye.

b. Brownish purple or lavender in color

(Type loc. Paraguay) Cyanocorax cyanomelas

bb. Deep blue in color crown entirely black.

(Type loc. Paraguay). Cyanocorax caeruleus.

a. Pictal bristles inconspicuous, sometimes obsolete; if distinct much less than half as long as exposed culmen, and bill not depressed, its basal depth equal to or greater than its basal width.

b. Bill narrowly cuneate, with the tip very acute and not distinctly if at all decurved, without distinct if any terminal notch.

c. Pictal bristles minute, underparts not yellow (♂ blue above, white spot in wing; ♀ greenish yellow, head gray)

Ateleodacnis fuscus

cc. Pictal bristles obvious, underparts yellow.

Compsothlypis pitiayumi

bb. Bill not cuneate, tip of maxilla obviously decurved, with a distinct notch.

Geothlypis

aa. Pictal bristles conspicuous, half as long as exposed culmen; bill depressed, basal width exceeding basal depth.

b. Lateral rectrices largely white, bill much depressed.

Myioborus brunneiceps

bb. Lateral rectrices without white.

c. Head & back uniform (yellowish below yellowish green above)

Basileuterus flaviventer

cc. Head & back not unicolor.

d. A Chestnut crown patch.

e. Supraorbital streak and nape olive yellow.

Basileuterus vittatus

ee. Supraorbital streak grayish white, nape grayish.

Basileuterus auricapillus

dc. Crown gray, back yellow

Basileuterus leucoblepharus

Deteriorae

a. Three to Five Primaries (8th to 6th or 4th inchman)
with outer webs sinuated; rectrices not acuminate.

b. Nostrils without superior membrane or operculum,
or if with the latter the operculum completely
coalesced with the mesorhinium. rump brightly colored
c. Middle pair of rectrices decidedly shorter than
adjacent pair and different in color. rump brown.

c.c. Middle pair of rectrices not shorter than adjacent
pair, tail black, rump red or yellow, or else whole
plumage black.

d. Particolored.

e. Rump red, larger, wing 170 mm

Cacicus haemorrhous

e.e. Rump yellow, smaller, wing 98 mm

Cacicus chrysopterus

dd. Entirely black, (with primary shorter than first.)
(bill whitish)

Amblycercus solitarius

bb Nostrils with more or less distinct superior membrane
or operculum.

c. Lesser secondaries (tertials?) as long as 5th primary
or longer (looks like Redwing with red breast. ♀
plainer than ♂)

Leioth superciliosus

c.c. Lesser secondaries much shorter than 5th primary.

d. Nostril small, roundish, much encroached upon
beneath by feathering of loreal area (bill short, stout)

e. wing feathers strongly marked with chestnut.
(grayer brown in both sexes) Molothrus badius

e.e. wing feathers not strongly marked with chestnut

f. ♂ glossy black violet blue black, ♀ brownish

Molothrus bonariensis

ff. ♂ dull shining black with rufous on
axillars, ♀ plain dull black without rufous.

Molothrus brevirostris

dd Nostril large, narrower, more or less linear, oblong or subuncate well forward of loreal anterior.
e Entire head orange red (bill startling white, broad and blunt at tip. young plain black)

Ambythamphus holosericeus

ee No orange red in head.

f Breast red (Meadowlark like) Tupialis.

g Underwing coverts white Tupialis militaris.

gg Underwing coverts black " defilippi.

ff Breast not red.

g Breast or abdomen bright yellow.

h Breast & throat yellow (unicolor)

Xanthopar flavus.

hh Upper breast & throat blackish or brownish olive

Sharply distinguished from yellow of rest of underparts.

i Rump yellow

Pseudoleistes guirahuro

ii Rump unicolor with back

" virescens.

gg Breast & abdomen not bright yellow.

h Feathers of crown, slender, stiffened, elongate.

(plumage black)

i Maxilla with two deep lateral sulci at base. tail slightly rounded. Grorinopar chopin

ii Bill longer, maxilla plain, tail near square or slightly emarginate.

Curdens curaeus.

h-h Feathers of crown normal.

i Bill slender, commissure slightly curved, culmen rounded (color black, shoulders chestnut)

(subsp. argoptilus Abak. Argentina. Actena pyrrhopterus
 typical sub. in Paraguay.

ii Bill stronger, commissure nearly straight,
Culmen flattened at some portion of length.

j Plumage mainly black (males)

K. Entirely black *Agelaius cyanopus*.

K.K. Particolored

L. Shoulder yellow. *Agelaius thibis*.

ll. Shoulder black, throat & crown
chestnut *Agelaius ruficapillus*.

jj Plumage streaked or plain (females)

K. Back chestnut lined with black,
yellowish below, median underparts only
lightly streaked. *Agelaius cyanopus*

KK. No chestnut on back.

L. heavily streaked below. a distinct white
superciliary *Agelaius thibis*.

ll. Breast yellowish, streaking
obscure. no distinct superciliary.
Agelaius ruficapillus.

aa. Only two primaries (8th & 7th) with outer
web sinuated, rectrices conspicuously
acuminati. *Dolichonyx oryzivorus*

Tyrannidae.

Electurus ^{risorius} ^{long} Two very heavy feathers growing from center of tail underneath, like tail in Steganura - a black band on chest.

Gubernetes yatapa. a long deeply forked tail, 12 inches long. throat white with brown semicircle beneath. wings black, rest of plumage gray.

Flavicola albiventer size of wood pewee forehead, face & underparts & rump white. elsewhere black save for white tips on greater coverts.

Lichenops perispicillata, ♂ streaked beneath, grayish above.

Copinus coloratus crown gray, white in front blackish slate above, gray below, central tail feathers elongate and rather spatulate at tips. size of wood pewee. central tail feathers as long as rest of tail.

Centurus = (hexania)

a inner web of primaries black.

C. niger

aa inner web of primaries light

C. oreas.

[Faint, illegible handwritten text, likely bleed-through from the reverse side of the page. The text is arranged in several paragraphs.]

Coropophaga lineata, Bill broad, tail short. Breast brown.

Corythopsis calcarata. resembles broad-billed Cormorant with black band on breast.

Bateria cinerea, a large formicariid ♂ gray & brown.

Thamnophilus leachi large speckled formicariid

"large Formicariid" "Thamophilus" = Tarabai major.

"Small Formicariid" = Ereunetes.

"Formicariid Black throat" : Myrmochilus strigatus.

"Synallaxid brown breast, black collar" : Rhoporchilus maximiliani.

Geositta

Bill long slender - 24-25 mm long.
G. tenuirostris

Bill shorter less than 20 mm.

Breast streaked

Breast plain G. cunicularia
G. rufipennis.

"longtail" = Schoeniophylax
phryganophilus

"Dendrocolaptid Nutcracker bill" Xenicopsia rufasuperciliata

"Small olive dendrocolaptid" Eittasomus.

"Big brown Woodhewer" Xiphocolaptes

"Sickle bill" Campylorhamphus trochilirostris.

(C. falcularius) from missions is smaller, duller with blackish bill.

[Faint, illegible handwriting throughout the page]

Fringillidae

Sicalis

a. inner webs of primaries edged with yellow.
S. pelzelni.

aa inner webs of primaries edged with white.
S. arvensis.

10. 11. 1914

11. 11. 1914

12. 11. 1914

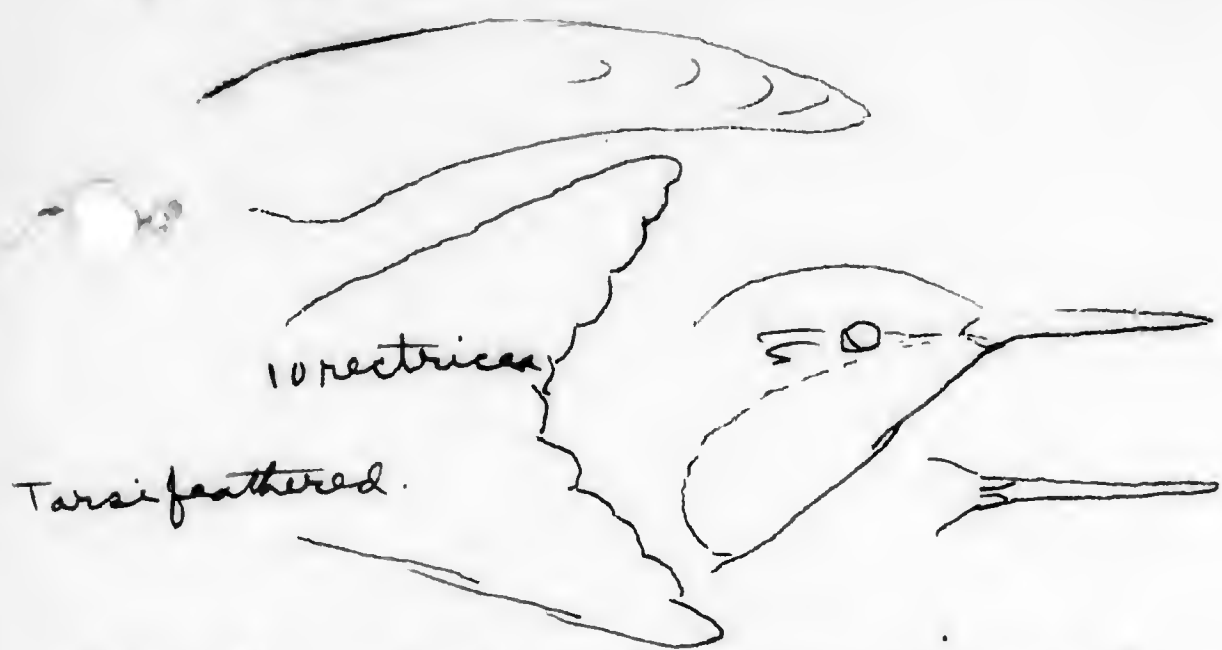
13. 11. 1914



Handily	^{Index} Rheidae	page 1
"	Tinamidae	" 2-9
"	Cracidae	" 10-
"	Columbidae	" 12-15
"	Rallidae	" 16-18
"	Podicipedidae	" 18
"	North American Limnidae	" 20-23
"	South "	" 24-26
"	Palamedidae	" 26
"	Cariamidae	" 26
"	Ardeidae	" 27
"	Ciconiidae	" 28
"	Alcedinidae	" 28
"	Sternidae	" 29
"	Laridae	" 30.
"	Anatidae	" 31-34.
"	Asionidae	" 35-
"	Psittacidae	" 36-39.
"	Alcedinidae	" 39.
"	Caprimulgidae	" 40-
"	Micropodidae	" 41
"	Trogonidae	" 41.
"	Cuculidae	" 42-
"	Rhamphastidae	" 43.
"	Picidae	" 44-46.
"	Galbulidae	" 47.
"	Phytotomidae	" 47.
"	Hirundinidae	" 48-49.

Family	Vireonidae	page	49
"	Troglodytidae	"	50-
"	Cinclidae	"	50.
"	Turdidae	"	51
"	Mimidae	"	52
"	Sylviidae	"	52.
"	Motacillidae	"	53
"	Corvidae	"	53.
"	Minutillidae	"	54-
"	Icteridae	"	55-57.

Smaragdochrysis.



Whole body, incl. up. + und. t. cov., iridescent pale green + light coppery-red, most brilliant on throat; tail steel dark brown.

Haliastur cornuta.



Has a bifurcated crest, very metallic, + requires no more descr. here. Nothing else like it.

Ptochoptera



Top of head + nape dull dark green; entire upper parts grass-green, slightly metallic. Tail cov. lighter green than back, + reach to fork of tail. Throat pale metallic green; rest of under parts pale smoky brown. Under t. c. long, colored as in abdomen, with a slight metallic greenish luster on centre of feathers. Tail dark purplish brown; wings purplish brown.

	Skins	alcoholic	Skeletons	Mammals
Berazategui, Buenos Aires	12			
Resistencia, Chaco,	140	9		
Las Palmas, ..	164	65	43	11
Kilometro 182, Formosa	129	23	24	27
Formosa, Formosa	13	5		
Puerto Pinasco, Paraguay	213	36	36	18
Dolores Buenos Aires,	8	1	10	3
Lavalle, Buenos Aires	153	29	38	25
Santi Domingo	1			
General Roca, Rio Negro 1122	73 98	39	140 28	81 11
Zapala, Neuquen	28	11	5	7
Bahia Blanca (Chingano White) Bs. As.	14	2		1
Carhué, Buenos Aires	36	7	9	6
Victoria, Pampa. 1449	187 90	245 18	207 25	112 6
Montevideo, Uruguay			4	
La Paloma, Rocha	2		21	
San Vicente, Rocha 1727 1105	106	259 14	250 18	113 1
Lagcano, Rocha	73	8	11	